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Pension World®

The Magazine for Plan Sponsors and Investment Managers / A Publication of Communication Channels, Inc

How to Pick a Global Custodian

Directory of Master and Directed Trust Services

Twelve Questions to Ask a Money Manager

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Pension World

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Cover: **Robert C. Almanas offers guidelines for picking a global custodian in an article beginning on page 18.**

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1987 Directory of Master and Directed Trust Services

The following *Pension World* Directory is a listing of firms indicating that they offer master and/or directed trusts. It is not an exhaustive list, but rather an identification of firms that responded in full to *Pension World's* questionnaire.

During August 1987, a questionnaire was mailed to 97 U.S. and three Canadian banks and trust companies. Of the responses received, 59 indicated that they offer master and/or directed trusts. This number is larger than last year's responses (56). Our research suggests that banks which have previously made substantial commitments to the master trust business are continuing and even increasing those commitments, while few, if any, banks are starting new master trust operations.

Master Trust continues to be defined in individual ways by the banks and trust companies offering this service. A technical definition, according to several authorities in the corporate trust industry, is a trust in which *multiple* plans of the same company control or share investment experience under *one trust document*. In working terms, however, some of the definitions used for master trust include: (1) an arrangement under one trust agreement that includes multiple money managers, one of which may or may not be the trustee; (2) a pooling of one sponsor's assets, which may include multiple managers and *one* or more plans, under one trust document; or (3) a pooling of directed trusts.

Similarly, several different definitions are given to the term *directed trust*. The general definition is a trust under which the trustee has less than full managerial authority of the plan sponsor's assets. However, the term is often used synonymously with *directed portfolio*, in which a manager has the authority to direct only those investments within the particular portion of assets under his direct control; and it is sometimes associated with *general trust*, in which a separate trust agreement is written for that portion of assets under the manager's control.

Figures gleaned in the following survey are not always comparable, although *Pension World* has taken every precaution to present these data in their most accurate form. All information in the directory was provided by the banks and trust companies listed. *Pension World* appreciates the efforts of those who completed and returned the questionnaires and hopes that each year's directory will continue to be more comprehensive.

AMERICAN NATIONAL BANK & TRUST COMPANY
Fifth & Minnesota Streets
St. Paul, MN 55101
Contact: William E. Burmeister, Asst. VP, (612) 298-6274

Number of separate master trust clients: 0
Number of directed trust clients: 12
Master trust assets: 0
Directed trust assets: $50 million
Custodial employee benefit assets: $1 million
Total employee benefit assets: $130 million
Number of separate portfolios: 17
Average number of accounts per account supervisor: 9
Average number of portfolios per investment manager contact: 17
Accounting system utilized: Contractual settlement date
Fail float credit provided: No
Short-term instruments used: Federated Master Trust, Treasury bills
Date short-term interest credited: First business day of month
Timeliness of reporting package: By 10th of each month
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement, index fund, guaranteed investment contract fund
Policy for crediting dividends and interest: Payable date in Federal funds
Fee structure: Based on combination of asset value and individual services

AMERITRUST COMPANY
900 Euclid Avenue
Cleveland, OH 44101
Contact: Gary W. Queen, Sr. VP, (216) 687-4089

Number of separate master trust clients: 43
Number of directed trust clients: 15
Master trust assets: $7 billion
Directed trust assets: $359 million
Custodial employee benefit assets: 0
Total employee benefit assets: $10.8 billion
Number of separate portfolios: 97
Average number of accounts per account supervisor: 12
Average number of portfolios per investment manager contact: 25
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, actual delivery date
Fail float credit provided: Yes
Short-term instruments used: STIF, variable demand notes, T-bills, commercial paper, Eurodollar CDs, CDs & financial reserves fund
Date short-term interest credited: 5th business day
Timeliness of reporting package: 3-5 business days after month end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, TUCS, Ameriscan (on-line client inquiry), investment management services
Policy for crediting dividends and interest: On payable date in good funds
Fee structure: Based on combination of asset value and individual services

BANK IV WICHITA
P.O. Box 4
Wichita, KS 67201-0004
Contact: Roger A. Ramseyer, trust marketing mgr., (316) 261-4555

Number of separate master trust clients: 1
Number of directed trust clients: 42
Master trust assets: $92 million
Directed trust assets: $169 million
Custodial employee benefit assets: $35 million
Total employee benefit assets: $235 million (not including custody, master or directed trusts)
Number of separate portfolios: 43
Average number of accounts per account supervisor: 10
Average number of portfolios per investment manager contact: 10
Accounting system utilized: Contractual settlement date
Fail float credit provided: No
Short-term instruments used: Shearson temp. fund, Shearson Treasury fund, Bank IV money market fund
Date short-term interest credited: First of each month
Timeliness of reporting package: All accounting and investment reviews mailed within 30 days following end of cycle
Services provided: Performance measurement, portfolio analysis, portfolio review, benefit disbursement
Policy for crediting dividends and interest: On payable date plus one; direct participant with Depository Trust Co.
Fee structure: Based on individual services performed

BANK OF AMERICA NT & SA
555 California Street
San Francisco, CA 94104
Contact: John P. Sheehy, Sr. VP, (415) 622-9568

Number of separate master trust clients: 39
Number of directed trust clients: 420
Master trust assets: $16.3 billion
Directed trust assets: $11.1 billion
Custodial employee benefit assets: Not provided
Total employee benefit assets: $38.6 billion (includes $300 million in bank-managed funds)
Number of separate portfolios: 2700
Average number of accounts per account supervisor: 9
Average number of portfolios per investment manager contact: Not provided
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, contractual settlement date
Fail float credit provided: It can be
Short-term instruments used: STIF
Date short-term interest credited: First day of following month
Timeliness of reporting package: 5-10 business days for monthly and quarterly reports; 20-30 business days for annual reports
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, global custody
Policy for crediting dividends and interest: On payable date, credited to STIF
Fee structure: Based on combination of asset value and individual services

BANK OF BOSTON CONNECTICUT
81 West Main Street
Waterbury, CT 06720
Contact: Roland Smith, VP, (203) 574-7340

Number of separate master trust clients: Not reported
Number of directed trust clients: 125
Master trust assets: Not reported
Directed trust assets: $150 million
Custodial employee benefit asset value: $50 million
Total employee benefit asset value: $200 million
Number of separate portfolios: 125
Average number of accounts per account supervisor: 35
Average number of portfolios per investment manager contact: 35
Accounting system utilized: Contractual settlement date
Fail float credit provided: No
Short-term instruments used: Salomon Bros. repurchase agreement
Date short-term interest credited: 1 day delay
Timeliness of reporting package: Monthly within 7 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: Via tape (Muller data) on due date
Fee structure: Based on combination of asset value and individual services

THE BANK OF NEW YORK
48 Wall Street
New York, NY 10015
Contact: Roy Lanza, VP, (212) 530-3751

Number of separate master trust clients: 88
Number of directed trust clients: Included above
Master trust assets: $40.9 billion
Directed trust assets: Included above
Custodial employee benefit assets: $52 billion
Total employee benefit assets: $92.9 billion
Number of separate portfolios: Not reported
Average number of accounts per account supervisor: 10
Average number of portfolios per investment manager contact: 25
Accounting system utilized: Trade date (full accrual), actual delivery date
Fail float credit provided: Yes
Short-term instruments used: STIF portfolios, master notes, Bank of New York deposit reserve, direct investments at BNY or client discretion
Date short-term interest credited: STIF interest accrued daily, paid monthly
Timeliness of reporting package: 3-5 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, beneficial interest reporting system, global custody, FIRST (on-line reporting system), DIAL-IN, options/futures, administration, benefit payment system
Policy for crediting dividends and interest: Most domestic securities on payable date; foreign and private placements as received
Fee structure: Based on individual services performed

BANK ONE, DAYTON, N.A.
40 N. Main St.
Dayton, OH 45401
Contact: Donald G. Middendorf, VP, (513) 449-8659

Number of separate master trust clients: 8
Number of directed trust clients: 24
Master trust assets: $390 million
Directed trust assets: $350 million
Custodial employee benefit assets: $50 million
Total employee benefit assets: $575 million
Number of separate portfolios: 70

Average number of accounts per account supervisor: 20
Average number of portfolios per investment manager contact: Not provided
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: Yes, master trust only
Short-term instruments used: Commercial paper, T-bills, STIF
Date short-term interest credited: Month end
Timeliness of reporting package: 3-5 business days
Services provided: Performance measurement, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, real estate fund, zero benefit disbursement, automatic sweep of funds in excess of $1.00
Policy for crediting dividends and interest: On payable date in Fed funds for government and STIF funds. All others use clearinghouse funds
Fee structure: Based on combination of asset value and individual services

BANKERS TRUST COMPANY
280 Park Avenue, 8 West
New York, NY 10017
Contact: Frederik L. Bailey, VP, (212) 850-2037

Number of separate master trust clients: 128
Number of directed trust clients: 100
Master trust assets: $91.1 billion
Directed trust assets: $1.7 billion
Custodial employee benefit asset value: $26.8 billion
Total employee benefit asset value: $169 billion
Number of separate portfolios: 1,735
Average number of accounts per account supervisor: 12
Average number of portfolios per investment manager contact: 80
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, contractual settlement date, actual delivery date
Fail float credit provided: Yes
Short-term instruments used: Master notes and commercial paper of the major finance companies, CDs of major U.S. money-center banks, Euro-dollar CDs and time deposits issued by these same banks, CD's issued by major European and Japanese banks from their New York agencies, repurchase agreements collateralized by U.S. Treasury or Federal Agency obligations, repurchase agreements collateralized by the Canadian or foreign issuers mentioned above, and banker's acceptances
Date short-term interest credited: First business day of each month
Timeliness of reporting package: Monthly/quarterly transaction statements are available within three business days of period end; monthly/quarterly accountings are available 7-10 business days after month end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, cash management, global custody, remote on-line access, consulting, active & passive investment services, cash projection, customized reporting, advisor services, options & futures processing, tax lot accounting, performance attribution, dividend reinvestment, discount brokerage, trade execution quality monitoring
Policy for crediting dividends and interest: On payable date in Federal funds
Fee structure: Based on combination of asset value and individual services

BISHOP TRUST COMPANY, LTD.
P.O. Box 2390
Honolulu, HI 96804
Contact: Keith R. Gendreau, Asst. VP, (808) 523-2114

Number of separate master trust clients: 55
Number of directed trust clients: 270
Master trust assets: $127 million
Directed trust assets: $263 million
Custodial employee benefit assets: $263 million
Total employee benefit assets: $360 million
Number of separate portfolios: 265
Average number of accounts per account supervisor: 16 master - 50 directed
Average number of portfolios per investment manager contact: Not provided
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: No
Short-term instruments used: Registered money market fund, T-Bills, CDs, commercial paper
Date short-term interest credited: Accrued daily, paid on second working day
Timeliness of reporting package: Delivered 10 days after month end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement, equity and income commingled investment funds, plan administration consulting and design
Policy for crediting dividends and interest: Pay date plus one with good funds
Fee structure: Based on combination of asset value and individual services

BOSTON SAFE DEPOSIT AND TRUST COMPANY
One Boston Place
Boston, MA 02106
Contact: John L. Carty, VP, (617) 722-7314

Number of separate master trust clients: 42
Number of directed trust clients: 290
Master trust assets: $33.7 billion
Directed trust assets: $846 million
Custodial employee benefit assets: $57.2 billion
Total employee benefit assets: $91.8 billion
Number of separate portfolios: 900
Average number of accounts per account supervisor: 4
Average number of portfolios per investment manager contact: 12
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Yes, if bank is responsible for a sale fail. Cash is transferred on actual settlement date for all purchase trades
Short-term instruments used: STIF, reserve deposit account, The Boston Company Cash Management Fund, active reserves, enhanced cash reserves
Date short-term interest credited: Accrued daily and credited on the third business day of the following month
Timeliness of reporting package: 5 business days following month-end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index funds, market inventory fund, full accrual trade date accounting and reporting, cash management, securities processing, global custody, structured investment products, analytical services, on-line access capabilities and PC workstation
Policy for crediting dividends and interest: Payable date for Fed funds; payable date plus one for clearinghouse funds for all scheduled interest and dividends collected through DTC of Federal Reserve Bank
Fee structure: Based on combination of asset value and individual services

CALIFORNIA FIRST BANK
530 B Street
P.O. Box 109
San Diego, CA 92112
Contact: Piet Westerbeek, VP & manager, (619) 230-3303

Number of separate master trust clients: 5
Number of directed trust clients: 400
Master trust assets: $200 million
Directed trust assets: $500 million
Custodial employee benefit assets: $600 million
Total employee benefit assets: $1.5 billion
Number of separate portfolios: Not provided
Average number of accounts per account supervisor: Not provided
Average number of portfolios per investment manager contact: Not provided
Accounting system utilized: Contractual settlement date
Fail float credit provided: No
Short-term instruments used: Short Investment Fund, four money market funds
Date short-term interest credited: Last day of the month
Timeliness of reporting package: 8-10 business days
Services provided: Performance measurement, participant recordkeeping, ERISA disclosure assistance, benefit disbursement, index fund
Policy for crediting dividends and interest: On payable date in clearinghouse funds
Fee structure: Based on combination of asset value and individual services

CENTERRE TRUST COMPANY
510 Locust Street
St. Louis, MO 63101
Contact: Richard W. Hibbs, VP, (314) 436-9265

Number of separate master trust clients: 10
Number of directed trust clients: Not provided
Master trust assets: $1.6 billion
Directed trust assets: $2.3 billion
Custodial employee benefit assets: $4.1 billion
Total employee benefit assets: $4.9 billion (discretionary), $4.l billion (non-discretionary)
Number of separate portfolios: 115
Average number of accounts per account supervisor: Not provided
Average number of portfolios per investment manager contact: 15-20
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: In-house STIF
Date short-term interest credited: Second day following month end
Timeliness of reporting package: 5-7 working days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, international collective fund, real estate collective fund
Policy for crediting dividends and interest: On payable date; computer system credit for immediate investment

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Fee structure: Based on combination of asset value and individual services

CHASE MANHATTAN BANK, N.A.
1211 Avenue of the Americas
New York, NY 10036
Contact: John A. Sweeney, VP, (212) 730-3008

Number of separate master trust clients: 160
Number of directed trust clients: 130
Master trust assets: $63.2 billion
Directed trust assets: $1.2 billion
Custodial employee benefit assets: $112 billion
Total employee benefit assets: $226.4 billion (including global employee benefit assets of $50 billion)
Number of separate portfolios: 1,000
Average number of accounts per account supervisor: 5
Average number of portfolios per investment manager contact: 30
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: Commercial paper, banker's acceptance, purchase agreement, government & agencies, master notes, certificates of deposit, floating rate notes and corporate notes
Date short-term interest credited: Payable date
Timeliness of reporting package: 5-7 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, institutional cross trading, global custody, global performance, customized comparative universes, client training, consulting, cash management, investment specialty products, customized reporting, international securities lending
Policy for crediting dividends and interest: On payable date; interest income in Federal funds, dividend income in clearinghouse funds
Fee structure: Based on combination of asset value and individual services

CITIBANK, N.A.
153 East 53rd Street
New York, NY 10043
Contact: Gregory J. di Pretoro, VP, (212) 559-1523

Number of separate master trust clients: 33
Number of directed trust clients: 315
Master trust assets: $10.7 billion
Directed trust assets: $18.4 billion
Custodial employee benefit assets: $73.4 billion
Total employee benefit assets: $102.5 billion
Number of separate portfolios: 2,017
Average number of accounts per account supervisor: 9
Average number of portfolios per investment manager contact: 33
Accounting system utilized: Trade date (full accrual), contractual settlement date, actual delivery date
Fail float credit provided: Yes
Short-term instruments used: Liquid reserve fund, short term investment fund, demand notes, custom short term investment fund, money market deposit account, individual money market instruments
Date short-term interest credited: Mid-month and end of month
Timeliness of reporting package: 5-7 business days following receipt of all information
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, global custody, dividend reinvestment, flexible reporting and graphics (Citicorp Portfolio Analyst)
Policy for crediting dividends and interest: On payable date if paid in Fed Funds; payable date plus one if paid in clearinghouse funds
Fee structure: Based on individual services performed

CITIZENS AND SOUTHERN TRUST COMPANY
33 North Avenue, N.E., Suite 990
P.O. Box 4114
Atlanta, GA 30302
Contact: Edgar R. Smith, VP-CIT sales, (404) 897-3083

Number of separate master trust clients: 44
Number of directed trust clients: 94
Master trust assets: $1.5 billion
Directed trust assets: $1.5 billion
Custodial employee benefit assets: $8.3 billion
Total employee benefit assets: $11.9 billion
Number of separate portfolios: 500
Average number of accounts per account supervisor: 140
Average number of portfolios per investment manager contact: 15
Accounting system utilized: Trade date, contractual settlement date with pending adjustment, contractual settlement date, actual delivery date
Fail float credit provided: Yes
Short-term instruments used: Money market fund, VANS, cash management fund
Date short-term interest credited: On payable date
Timeliness of reporting package: Ten working days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, international fund
Policy for crediting dividends and interest: On payable date; immediate credit to account
Fee structure: Based on combination of asset value and individual services

CITY NATIONAL BANK OF FLORIDA
P.O. Box 025611
25 West Flagler St.
Miami, FL 33130
Contact: Richard Lyon, Asst. VP, (305) 577-7470

Number of separate master trust clients: 0
Number of directed trust clients: 4
Master trust assets: 0
Directed trust assets: $17 million
Custodial employee benefit assets: 0
Total employee benefit assets: $28 million
Number of separate portfolios: 4
Average number of accounts per account supervisor: 4
Average number of portfolios per investment manager contact: 1
Accounting system utilized: Delivery versus settlement
Fail float credit provided: No
Short-term instruments used: Yes
Date short-term interest credited: End of each month
Timeliness of reporting package: Monthly, quarterly, semi-annually, annually
Services provided: Portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: When received

Fee structure: Based on combination of asset value and individual services

CONNECTICUT BANK & TRUST COMPANY, N.A.
One Constitution Plaza(MO8F)
Hartford, CT 06115
Contact: Paul W. Stadler, VP, Mgr. mktg. & sls., custom financial management div., (203) 244-5385

Number of separate master trust clients: 25
Number of directed trust clients: 75
Master trust assets: $1.1 billion
Directed trust assets: $872 million
Custodial employee benefit assets: $119 million
Total employee benefit assets: $2.1 billion
Number of separate portfolios: 237
Average number of accounts per account supervisor: 25 relationships with average of two plans per account
Average number of portfolios per investment manager contact: 27
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: Yes
Short-term instruments used: Commingled short term funds, repurchase agreements, variable interest rate notes, CDs, commercial paper, U.S. governments
Date short-term interest credited: Monthly
Timeliness of reporting package: 2-20 business days, depending upon type of report
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, South Africa-free equity fund
Policy for crediting dividends and interest: On payable date; in Fed funds for Fed funds, same day; clearinghouse for clearinghouse funds, next day
Fee structure: Based on combination of asset value and individual services

THE CONNECTICUT NATIONAL BANK
777 Main Street
Hartford, CT 06115
Contact: Arnold P. Boecklin, VP, (203) 728-4420

Number of separate master trust clients: 25
Number of directed trust clients: 19
Master trust assets: $1.7 billion
Directed trust assets: $502 million
Custodial employee benefit assets: $502 million
Total employee benefit assets: $4.3 billion
Number of separate portfolios: 162
Average number of accounts per account supervisor: 12
Average number of portfolios per investment manager contact: 10
Accounting system utilized: Contractual settlement date
Fail float credit provided: No
Short-term instruments used: U.S. govt. and agency obligations, CD's, VANS, REPOS, commercial paper, GICs
Date short-term interest credited: same day
Timeliness of reporting package: 4 business days following month end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, index fund
Policy for crediting dividends and interest: On payable date in Federal funds
Fee structure: Based on combination of asset value and individual services

CONTINENTAL ILLINOIS NATIONAL BANK AND TRUST COMPANY
231 South LaSalle Street
Chicago, IL 60697
Contact: Christopher S. Ross, VP, (312) 828-3560

Number of separate master trust clients: 46
Number of directed trust clients: 227
Master trust assets: $15.6 billion
Directed trust assets: $1.8 billion
Custodial employee benefit assets: Not provided
Total employee benefit assets: $17.4 billion
Number of separate portfolios: Not provided
Average number of accounts per account supervisor: 15
Average number of portfolios per investment manager contact: Not provided
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Yes
Short-term instruments used: Continental Bank's STIF or others as directed by client or manager
Date short-term interest credited: Second business day
Timeliness of reporting package: Cash statements - second business day; asset list, sixth business day; fully reconciled fund accounting - 30th calendar day
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, global custody, on-line access to data, flexible reporting, electronic mail system
Policy for crediting dividends and interest: On published payable date in Federal funds
Fee structure: Based on combination of asset value and individual services

DOMINION TRUST COMPANY
213 S. Jefferson St.
P.O. Box 13327
Roanoke, VA 24040
Contact: Stephen A. Slovensky, VP, (703) 563-7857

Number of separate master trust clients: 1
Number of directed trust clients: 69
Master trust assets: $49 million
Directed trust assets: $175 million
Custodial employee benefit assets: $88 million
Total employee benefit assets: $312 million
Number of separate portfolios: 221
Average number of accounts per account supervisor: 23
Average number of portfolios per investment manager contact: 60
Accounting system utilized: Trade date (full accrual), contractual settlement date
Fail float credit provided: No
Short-term instruments used: Temporary Investment Fund, Inc., Trustfunds liquid asset trust Treasury portfolio
Date short-term interest credited: First of following month
Timeliness of reporting package: By fifth business day following end of accounting period to investment managers; by 15th business day to client
Services provided: Portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: Corporate issues - on settlement date in clearinghouse funds; government issues - on settlement date in Federal funds
Fee structure: Based on combination of asset value and individual services

FIRST INTERSTATE BANK OF CALIFORNIA
707 Wilshire Blvd.
Los Angeles, CA 90017
Contact: Terry Colberg, VP (213) 614-2336

Number of separate master trust clients: 20
Number of directed trust clients: 251
Master trust assets: $3.3 billion
Directed trust assets: $11.2 billion
Custodial employee benefit assets: $1 billion
Total employee benefit assets: $18.7 billion
Number of separate portfolios: 1200
Average number of accounts per account supervisor: 45
Average number of portfolios per investment manager contact: 35
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: Yes
Short-term instruments used: First Interstate short term Income Fund, extended money market fund
Date short-term interest credited: First week following end of month
Timeliness of reporting package: No later than 10 working days following month end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, on-line access, cash management, customized reporting, automatic daily sweep into STIF
Policy for crediting dividends and interest: From payable date
Fee structure: Based on combination of asset value and individual services

FIRST INTERSTATE BANK OF OREGON, N.A.
P.O. Box 2971
Portland, OR 97208
Contact: Peter M. Cullen, VP, (503) 225-2484

Number of separate master trust clients: 23
Number of directed trust clients: 34
Master trust assets: $4.2 billion
Directed trust assets: $302 million
Custodial employee benefit assets: 0
Total employee benefit assets: $5.4 billion
Number of separate portfolios: 139
Average number of accounts per account supervisor: 58
Average number of portfolios per investment manager contact: 1.4
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, contractual settlement date
Fail float credit provided: No
Short-term instruments used: A variety of high yield institutions-only money market funds
Date short-term interest credited: Last day of month
Timeliness of reporting package: Within five business days
Services provided: Performance measurement, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, on-line access, cash management, global custody, multicurrency accounting, options & futures processing, customized reporting
Policy for crediting dividends and interest: On payable date in Fed funds
Fee structure: Based on combination of asset value and individual services

Directory of Master and Directed Trust Services continues on page 52

FIRST INTERSTATE BANK OF UTAH, N.A.
180 South Main Street
P.O. Box 30169
Salt Lake City, UT 84142
Contact: Rod R. Cushing, VP, (801) 350-7118

Number of separate master trust clients: 29
Number of directed trust clients: 45
Master trust assets: $165 million
Directed trust assets: $5 million
Custodial employee benefit assets: $286 million
Total employee benefit assets: $497 million
Number of separate portfolios: 67
Average number of accounts per account supervisor: 24
Average number of portfolios per investment manager contact: 24
Accounting system utilized: Contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: Various short term investment funds, commercial paper and Treasury bills
Date short-term interest credited: First business day of month
Timeliness of reporting package: 5-10 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement, index fund, plan design, IRS plan qualification, computer on-line data access, full income and expense accrual accounting, automated daily sweep of cash to STIF investment
Policy for crediting dividends and interest: On payable date through internal suspense
Fee structure: Based on combination of asset value and individual services

FIRST INTERSTATE BANK OF WASHINGTON, N.A.
Trust Division
P.O. Box 21927
Seattle, WA 98111
Contact: Lawrence T. Divers, VP & trust officer, (206) 343-8346

Number of separate master trust clients: Not provided
Number of directed trust clients: 38
Master trust assets: Not provided
Directed trust assets: $1.5 billion
Custodial employee benefit assets: $1.1 billion
Total employee benefit assets: $1.3 billion
Number of separate portfolios: Not provided
Average number of accounts per account supervisor: Not provided
Average number of portfolios per investment manager contact: Not provided
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Yes
Short-term instruments used: In-house short-term investment fund, Federated master trust, federated intermediate
Date short-term interest credited: Statement date
Timeliness of reporting package: 10 working days after month end
Services provided: Performance measurement, participant recordkeeping, securities lending, cash management and lockbox services
Policy for crediting dividends and interest: On payable date
Fee structure: Based on individual services performed

FIRST NATIONAL BANK & TRUST COMPANY OF TULSA
P.O. Box One
Tulsa, Ok 74193
Contact: Richard A. Moser, Sr. VP & Sr. Trust Officer, (918) 586-5661

Number of separate master trust clients: 3
Number of directed trust clients: 54
Master trust assets: $126 million
Directed trust assets: $141 million
Custodial employee benefit assets: $705 million
Total employee benefit assets: $972 million
Number of separate portfolios: 57
Average number of accounts per account supervisor: 29
Average number of portfolios per investment manager contact: 270
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Yes
Short-term instruments utilized: Short term inv. company, Dreyfus Money Market, Federated U.S. Treasury obligations, ILA Govt., Shearson Temp. Fund
Date short-term interest credited: First day following month end
Timeliness of reporting package: By 15th business day
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: On payable date in good funds
Fee structure: Based on combination of asset value and individual services

FIRST PENNSYLVANIA BANK, N.A.
15th & Chestnut Streets
Philadelphia, PA 19101
Contact: James F. McHale, Sr. VP, (215) 786-7946

Number of separate master trust clients: 18
Number of directed trust clients: 70
Master trust assets: $3.8 billion
Directed trust assets: $2.2 billion
Custodial employee benefit assets: $22.2 billion
Total employee benefit assets: $26 billion
Number of separate portfolios: 175
Average number of accounts per account supervisor: 17
Average number of portfolios per investment manager contact: 50
Accounting system utilized: Trade date (full accrual), contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: Government Secured Master Repo Account
Date short-term interest credited: Monthly
Timeliness of reporting package: 10 working days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, performance comparison, global custody, downloading, on-line performance measurement, on-line via dial-up capability
Policy for crediting dividends and interest: On payable date in clearinghouse funds on equities and municipals; Federal funds on government issues
Fee structure: Based on combination of asset value and individual services

FIRST REPUBLICBANK
P.O. Box 241
Dallas, TX 75221
Contact: David J. Pittman, Sr. VP, (214) 922-6506

Number of separate master trust clients: 251
Number of directed trust clients: Included with master trust clients
Master trust assets: $25.6 billion
Directed trust assets: Included with master trust assets
Custodial employee benefit assets: $12.6 billion
Total employee benefit assets: $36.4 billion
Number of separate portfolios: 205
Average number of accounts per account supervisor: 10
Average number of portfolios per investment manager contact: 9
Accounting system utilized: Trade date (full accrual), contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: Commingled STIF, individually managed STIF, aggressive STIF, Silver Star and others
Date short-term interest credited: First and 15th
Timeliness of reporting package: On-line, second business day; hard copy, fifth business day
Services provided: On-line performance measurement, portfolio analysis, portfolio review, on-line participant recordkeeping, securities lending, ERISA disclosure assistance, on-line benefit disbursement, index fund, market inventory fund, client on-line reporting, downloading and formatting capabilities, 150+ accounting reports, fail float earnings, dividends and interest on payable date in good funds, on-line DTC/ID securities processing, global custody, portfolio insurance, daily pricing, futures and options trading, GIC wholesale/managed, and control disbursement
Policy for crediting dividends and interest: On payable date in good funds
Fee structure: Based on combination of asset value and individual services

FIRST VERMONT BANK
15 Harris Place
Brattleboro, VT 05301
Contact: Donna L. Gilbert, employee benefits administrative officer, (802) 254-8711

Number of separate master trust clients: 170
Number of directed trust clients: 2
Master trust assets: $66 million
Directed trust assets: $4 million
Custodial employee benefit asset value: Not provided
Total employee benefit asset value: $70 million
Number of separate portfolios: 20
Average number of accounts per account supervisor: 50
Average number of portfolios per investment manager contact: 10
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Not stated
Short-term instruments used: Federated short-term U.S. government fund, First Vermont Bank Trust Money Market Account
Date short-term interest credited: Fifth of month
Timeliness of reporting package: 60 days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: On payable date
Fee structure: Based on combination of asset value and individual services

FIRST WACHOVIA
301 North Main Street
Winston-Salem, NC 27150
Contact: Jane B. Fisher, VP, (919) 770-6348

Number of separate master trust clients: 57
Number of directed trust clients: 60
Master trust assets: $23.2 billion
Directed trust assets: $500 million
Custodial employee benefit assets: $4 billion

Total employee benefit assets: $31.7 billion
Number of separate portfolios: 550
Average number of accounts per account supervisor: 8
Average number of portfolios per investment manager contact: 20
Accounting system utilized: Contractual settlement date with pending adjustment, contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: STIF Funds, demand notes, short-term bond fund, Treasury notes, repos, and individually managed short-term accounts
Date short-term interest credited: First
Timeliness of reporting package: 10 business days or less
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, global custody, securities lending, options and futures processing, TUCS, Rabbi Trust administration, performance consulting, asset allocation, PC downloading, flexible reporting
Policy for crediting dividends and interest: On payable date in Federal funds
Fee structure: Based on combination of asset value and individual services

FIRST WISCONSIN TRUST COMPANY
P.O. Box 2054
777 E. Wisconsin Avenue
Milwaukee, WI 53201
Contact: Anthony M. Rood, Jr., First VP, (414) 765-4444

Number of separate master trust clients: 34
Number of directed trust clients: 802
Master trust assets: $3.7 billion
Directed trust assets: $1.7 billion
Custodial employee benefit assets: $1.2 billion
Total employee benefit assets: $8.2 billion (includes discretionary)
Number of separate portfolios: 850
Average number of accounts per account supervisor: 15
Average number of portfolios per investment manager contact: 50
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Yes
Short-term instruments used: Short-term income fund and variable demand notes
Date short-term interest credited: By second business day of the month
Timeliness of reporting package: Financial transactions are available on the second business day of the month
Services provided: Performance measurement, portfolio analysis, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, quantitative fixed income management (bond index, immunization/dedication), stock index management
Policy for crediting dividends and interest: On payable date in clearinghouse funds
Fee structure: Based on combination of asset value and individual services

HT INVESTORS, INC.
321 South Main Street
Providence, RI 02903
Contact: J. Richard Schroder, VP-marketing director, (401) 276-6100

Number of separate master trust clients: 13

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- Senior Vice President of a multi-billion dollar investment advisory firm.

For further information, please contact:

Irwin Tepper Associates
77 Oak Street, Suite 2 • Newton, MA 02164 • 617-244-6747

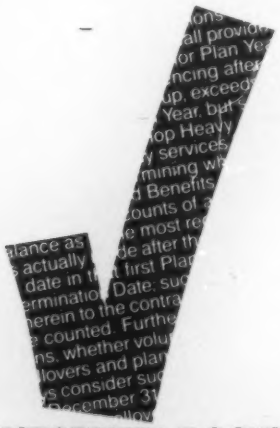
Number of directed trust clients: 25
Master trust assets: $600 million
Directed trust assets: $643 million
Custodial employee benefit assets: $102 million
Total employee benefit assets: $1.5 billion
Number of separate portfolios: 137
Average number of accounts per account supervisor: Not provided
Average number of portfolios per investment manager contact: Not provided
Accounting system utilized: Actual delivery date with pending adjustment
Fail float credit provided: No
Short-term instruments used: Shearson Lehman Brothers Inc. Temp. Fund
Date short-term interest credited: Accrued daily/credited on first business day of month
Timeliness of reporting package: Cash statements, second business day; all others 5th-7th business day
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement, options and futures processing, 401(k) capabilities, plan accounting, fund accounting, on-line accounting and reporting system
Policy for crediting dividends and interest: Payable date for Federal funds; next business day following payable date for clearinghouse funds
Fee structure: Based on combination of asset value and individual services

HARRIS TRUST AND SAVINGS BANK
111 West Monroe Street
Chicago, IL 60603
Contact: Walter J. Kowalczyk, VP, (312) 461-7625

Number of separate master trust clients: 64
Number of directed trust clients: 231
Master trust assets: $37.3 billion
Directed trust assets: $7.5 billion
Custodial employee benefit assets: $8.8 billion
Total employee benefit assets: $53.6 billion
Number of separate portfolios: 740
Average number of accounts per account supervisor: 9
Average number of portfolios per investment manager contact: 85
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Yes
Short-term instruments used: STIF, commercial paper, certificates of deposit (domestic and Euro), bankers acceptances, U.S. government and agency issues, repurchase agreements, demand notes
Date short-term interest credited: Third or fourth business day of the following month
Timeliness of reporting package: Monthly transactions and assets, 2 to 7 business days; monthly and annual audited financial summaries with ERISA and plan accounting, 12 to 15 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, Trust Universe Comparison Service, options/futures accounting, global custody, on-line accounting and analytics with download capability, on-line "flexi-reporting," automated daily sweep of cash, automated cash management, custom cash management
Policy for crediting dividends and interest: On payable date in good funds
Fee structure: Based on combination of asset value and individual services

HERITAGE PULLMAN BANK & TRUST COMPANY
1000 E. 111th St.
Chicago, IL 60628
Contact: Robert J. Ferrari or Christopher P. Joyce VPs & trust officers, (312) 785-1000

Number of separate master trust clients: 0
Number of directed trust clients: 25
Master trust assets: 0
Directed trust assets: $50 million
Custodial employee benefit assets: $3 million
Total employee benefit assets: $120 million
Number of separate portfolios: 27
Average number of accounts per account supervisor: 125
Average number of portfolios per investment manager contact: 27
Accounting system utilized: Contractual settlement date; None for purchases, one day later on sales
Short-term instruments used: Federated funds
Date short-term interest credited: First of month
Timeliness of reporting package: Not provided
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement, fixed income fund - average maturity, 4½ years; equity fund - mostly large companies
Policy for crediting dividends and interest: On receipt
Fee structure: Based on combination of asset value and individual services



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THE INTERNATIONAL TRUST COMPANY
Royal Bank Plaza, North Tower, Box 75
Toronto, Ontario, Canada M5J 2J2
Contact: William A. Pascoe, VP-client services, (416) 865-0515

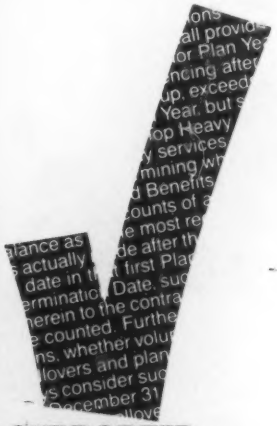
All figures are in Canadian dollars
Number of separate master trust clients: 19
Number of directed trust clients: 35
Master trust assets: $3.8 billion
Directed trust assets: $2.1 billion
Custodial employee benefit assets: Not provided
Total employee benefit assets: $5.9 billion
Number of separate portfolios: 512
Average number of accounts per account supervisor: 35
Average number of portfolios per investment manager contact: 15
Accounting system utilized: Trade date (full accrual), contractual settlement date
Fail float credit provided: No
Short-term instruments used: Daily STIF available, also client-directed STIFs
Date short-term interest credited: Daily
Timeliness of reporting package: 2-10 days (depends on needs and account profile)
Services provided: Performance measurement, portfolio analysis, participant recordkeeping, securities lending, benefit disbursement, index fund
Policy for crediting dividends and interest: On payable date
Fee structure: Based on combination of asset value and individual services

IRVING TRUST COMPANY
One Wall Street
New York, NY 10015
Contact: Paul L. McNamara, VP, (212) 635-1720

Number of separate master trust clients: 32
Number of directed trust clients: 64
Master trust assets: $15.5 billion
Directed trust assets: $1.8 billion
Custodial employee benefit assets: $37 billion
Total employee benefit assets: $54.3 billion
Number of separate portfolios: 700
Average number of accounts per account supervisor: 8
Average number of portfolios per investment manager contact: 50
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: Master notes; repos; U.S. government and agency obligations; domestic and offshore time deposits of domestic banks; domestic, European and foreign bank CDs; bankers' acceptances; commercial paper; shelf registration notes; short-term bonds
Date short-term interest credited: First business day of the month
Timeliness of reporting package: 5-10 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, investment management, global custody, pension consulting services, immunized and dedicated bond portfolios, on-line reporting, PC communication system, cash management
Policy for crediting dividends and interest: On payable date in Fed funds
Fee structure: Based on combination of asset value and individual services

LASALLE NATIONAL BANK
135 S. LaSalle St.
Chicago, IL 60690
Contact: James F. Sullivan, Sr. VP, (312) 443-2497

Number of separate master trust clients: 13
Number of directed trust clients: 50
Master trust assets: $650 million
Directed trust assets: $700 million
Custodial employee benefit assets: $8.5 billion
Total employee benefit assets: $1.5 billion (trust), $4 billion (custodial)
Number of separate portfolios: 300
Average number of accounts per account supervisor: 70
Average number of portfolios per investment manager contact: 15-20
Accounting system utilized: Contractual settlement date (optional), actual delivery date (normal)
Fail float credit provided: Available — not normal
Short-term investment used: STIF, demand notes, super STIF
Date short-term interest credited: Second business day
Timeliness of reporting package: Varies with report, 8th-10th business day
Services provided: Performance measurement, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement, index fund, full range of investment products, super STIF for major accounts



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Policy for crediting dividends and interest: On payable date through automatic credit to account
Fee structure: Based on combination of asset value and individual services

MANUFACTURERS HANOVER TRUST
330 Fifth Avenue, 4th Floor
New York, NY 10036
Contact: Renee San Marco, VP, (212) 819-1580

Number of separate master trust clients: 117 (includes master custody)
Number of directed trust clients: 106
Master trust assets: $29.7 billion
Directed trust assets: $3 billion
Custodial employee benefit assets: $32 billion
Total employee benefit assets: $65 billion
Number of separate portfolios: 1,275
Average number of accounts per account supervisor: 8
Average number of portfolios per investment manager contact: 85
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, contractual settlement date, actual delivery date
Fail float credit provided: Yes
Short-term instruments used: Manufacturers Hanover's STIF
Date short-term interest credited: Accrued daily; credited by 5th business day.
Timeliness of reporting package: Monthly transaction report 3-5 business days, financial reports 5-7 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund (available through Manufacturers Hanover Investment Corp.) market inventory fund (available through Manufacturers Hanover Investment Corp.), plan accounting, Vertically Integrated On-Line Access (VIOLA), actuarial services
Policy for crediting dividends and interest: On payable date for listed securities, credited with same day funds
Fee structure: Based on combination of asset value and individual services

MANUFACTURERS NATIONAL BANK OF DETROIT
100 Renaissance Center, 13th Floor
Detroit, MI 48243
Contact: Robert R. Schoonbeck, Sr. VP, (313) 222-4470

Number of separate master trust clients: 29
Number of directed trust clients: 328
Master trust assets: $18.3 billion
Directed trust assets: $15.4 billion
Custodial employee benefit assets: $4.4 billion
Total employee benefit assets: $20.7 billion
Number of separate portfolios: Not provided
Average number of accounts per account supervisor: 12
Average number of portfolios per investment manager contact: 16
Accounting system utilized: Trade date (full accrual), contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: Commercial paper, certificates of deposit, repurchase agreements
Date short-term interest credited: Third business day after month end
Timeliness of reporting package: 5 business days after end of period
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, benefit disbursement, index fund, cash management
Policy for crediting dividends and interest: On payable date automatically
Fee structure: Based on combination of asset value and individual services

MARINE MIDLAND BANK, N.A.
250 Park Avenue, Second Floor
New York, NY 10177
Contact: Moira L. Patterson, VP, (212) 503-2724

Number of separate master trust clients: 20
Number of directed trust clients: 110
Master trust assets: $1.8 billion
Directed trust assets: $600 million
Custodial employee benefit assets: $800 million
Total employee benefit assets: $3.2 billion
Number of separate portfolios: 470
Average number of accounts per account supervisor: 15-20
Average number of portfolios per investment manager contact: Not provided
Accounting system utilized: Trade date (full accrual), contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: STIF, money market fund, T-bills, master notes, commercial paper
Date short-term interest credited: Monthly (end of month)
Timeliness of reporting package: 7-10 business days
Services provided: Performance measurement, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, on-line access
Policy for crediting dividends and interest: On payable date automatically
Fee structure: Based on individual services performed

MARQUETTE BANK MINNEAPOLIS
6th & Marquette
Minneapolis, MN 55402
Contact: Peter Miller, VP trust marketing, (612) 341-7867

Number of separate master trust clients: 0
Number of directed trust clients: 215
Master trust assets: 0
Directed trust assets: $150 million
Custodial employee benefit asset value: $400 million
Total employee benefit asset value: $550 million
Number of separate portfolios maintained: 150
Average number of accounts per account supervisor: 50
Average number of portfolios per investment manager contact: 50
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Not stated
Short-term instruments used: Commercial paper, bankers acceptances, etc. Institutional money market accounts: Shearson, Fidelity, Federated
Date short-term interest credited: First of each month
Timeliness of reporting package: 10 business days after month end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: On due date
Fee structure: Based on combination of asset value and individual services

MARSHALL & ILSLEY TRUST COMPANY
770 North Water Street
Milwaukee, WI 53202
Contact: Morry L. Birnbaum, VP, (414) 287-7187

Number of separate master trust clients: 40
Number of directed trust clients: 600
Master trust assets: $1.8 billion
Directed trust assets: $900 million
Custodial employee benefit assets: $200 million
Total employee benefit assets: $2.9 billion
Number of separate portfolios: 600
Average number of accounts per account supervisor: 100
Average number of portfolios per investment manager contact: 15
Accounting system utilized : Contractual settlement date with pending adjustment
Fail float credit provided: Negotiated
Short-term instruments used: STIF with ACM; T-bills
Date short-term interest credited: Daily
Timeliness of reporting package: 5-7 business days
Services provided: Performance measurement, participant recordkeeping, ERISA disclosure assistance, benefit disbursement, on-line access, investment management
Policy for crediting dividends and interest: On payable date in actual funds
Fee structure: Based on combination of asset value and individual services

MARYLAND NATIONAL BANK
2 N. Charles Street
P.O. Box 995
Baltimore, MD 21203
Contact: Patricia L. Potter, VP, (301) 347-9070

Number of separate master trust clients: 3
Number of directed trust clients: 52
Master trust assets: $136 million
Directed trust assets: $498 million
Custodial employee benefit assets: N/A (handled in separate custody-only department
Total employee benefit assets: $1.1 billion
Number of separate portfolios: 114
Average number of accounts per account supervisor: 38
Average number of portfolios per investment manager contact: 55
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: No
Short-term instruments used: Commingled cash reserve fund
Date short-term interest credited: Third of following month
Timeliness of reporting package: Within 10 days of period end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: On due date, credited to cash
Fee structure: Based on combination of asset value and individual services

MELLON BANK
One Mellon Bank Center
Pittsburgh, PA 15258
Contact: Gary A. Rothman, VP, (412) 234-5000

Number of separate master trust clients: 98
Number of directed trust clients: 58
Master trust assets: $98.7 billion
Directed trust assets: $2.5 billion
Custodial employee benefit assets: $5.6 billion
Total employee benefit assets: $93.3 billion
Number of separate portfolios: 1,000
Average number of accounts per account supervisor: 5-8 (depending on specifics)
Average number of portfolios per investment manager contact: 50
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Yes
Short-term instruments used: Commingled, short-term funds utilizing A-1 and P-1 investments
Date short-term interest credited: Earned daily/credited weekly
Timeliness of reporting package: Monthly, quarterly and annually with monthly statements available third business day following month end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, global custody, performance analytics, on-line access, options & futures, customized reports, performance consulting
Policy for crediting dividends and interest: On payable date; clearinghouse funds for corporate bonds and equities; Fed funds for governments
Fee structure: Based on combination of asset value and individual services

MONTREAL TRUST COMPANY OF CANADA
15 King Street West
Toronto, Ontario
Contact: Ray La Force, VP-pension administration, (416) 860-5649

All figures are in Canadian dollars
Number of separate master trust clients: 82
Number of directed trust clients: 273
Master trust assets: $7.3 billion
Directed trust assets: $1.4 billion
Custodial employee benefit assets: $17.2 billion
Total employee benefit assets: $18.6 billion
Number of accounts: 1150
Average number of accounts per account supervisor: 67
Average number of portfolios per investment manager contact: Not provided
Accounting system utilized: Contractual settlement date
Fail float credit provided: No
Short-term instruments used: T-Plus (STIF)
Date short-term interest credited: Monthly (accrued daily)
Timeliness of reporting package: 5 to 10 working days following month end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, benefit disbursement, global custody, specialized index funds
Policy for crediting dividends and interest: On payable date; credited automatically to account
Fee structure: Based on combination of asset value and individual services

NATIONAL BANK OF DETROIT
611 Woodward Avenue
Detroit, MI 48226
Contact: Larry D. Rankens, Asst. VP, (313) 225-2660

Number of separate master trust clients: 116
Number of directed trust clients: Not provided
Master trust assets: $13.7 million
Directed trust assets: Not provided
Custodial employee benefit assets: $14.3 million
Total employee benefit assets: $28 million
Number of separate portfolios: 445
Average number of accounts per account supervisor: 10
Average number of portfolios per investment manager contact: Not provided
Accounting system utilized: Trade date (full accrual), contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: A fund with a diversified portfolio of high quality, short-term instruments, including trust demand notes and commercial paper, domestic and Eurodollar CDs, bankers acceptances, repurchase agreements secured by Treasury issues and Treasury bills
Date short-term interest credited: First business day after end of month
Timeliness of reporting package: Monthly reports: 5-7 business days; asset and liability reports: within 30 business days; performance measurement: within 5-30 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, cash management, data monitor (on-line access), global custody
Policy for crediting dividends and interest: On payable date in Federal funds
Fee structure: Based on combination of asset value and individual services

NATIONAL TRUST COMPANY
21 King Street East
Toronto, Ontario M5C 1B3
Contact: Julie K. Spergel, director, business development, (416) 361-3611

All figures are in Canadian dollars
Number of separate master trust clients: 36
Number of directed trust clients: 140
Master trust assets: $4 billion
Directed trust assets: $4 billion
Custodial employee benefit assets: $8 billion
Total employee benefit assets: $12 billion
Number of separate portfolios: Not provided
Average number of accounts per account supervisor: 10
Average number of portfolios per investment manager contact: Not provided
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: Not applicable—95% of trades processed through Canadian Depository for Securities (book-based system)
Short-term instruments used: STIF, daily bank interest on uninvested cash
Date short-term interest credited: Daily
Timeliness of reporting package: 10 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, benefit disbursement, index fund, global fund

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Policy for crediting dividends and interest: On due date automatically by bond and dividend registers
Fee structure: Based on combination of asset value and individual services

THE NORTHERN TRUST COMPANY
50 South LaSalle Street
Chicago, IL 60675
Contact: Thomas W. Kimen, Jr., Sr. VP, (312) 630-6000

Number of separate master trust/custody clients: 190
Number of directed trust clients: 37
Master trust/custody assets: $101.4 billion
Directed trust assets: $1.5 billion
Custodial employee benefit assets: $6.2 billion
Total employee benefit assets: $109.1 billion
Number of separate portfolios: 2,025
Average number of accounts per account supervisor: 5
Average number of portfolios per investment manager contact: 67
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: Yes
Short-term instruments used: STIF, benchmark & NORCASH
Date short-term interest credited: Third business day after month end
Timeliness of reporting package: 3 to 5 days after period end; available on-line 24 hours a day
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, global custody, portfolio restructuring, EAFE index fund, electronic delivery, cash management, asset management
Policy for crediting dividends and interest: On payable date. Regularly scheduled dividend and interest payments are credited on payable date in good funds regardless of whether The Northern Trust has received the funds
Fee structure: Based on combination of asset value and individual services

NORWEST BANK MINNEAPOLIS
8th & Marquette
Minneapolis, MN 55479
Contact: Stan Medina, director of sales, (612) 372-5023

Number of separate master clients: 23
Number of directed trust clients: 950
Master trust assets: $2.6 billion
Directed trust assets: $6.8 billion
Custodial employee benefit asset value: $2 billion
Number of separate portfolios: 220
Average number of accounts per account supervisor: 7
Average number of portfolios per investment manager contact: 44
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: No
Short-term instruments used: STIF, Dreyfus cash management 2 (daily sweep)
Date short-term interest credited: Second business day of each month
Timeliness of reporting package: 10 business days
Services provided: Performance measurement (including TUCS), portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, on-line access, asset allocation
Policy for crediting dividends and interest: On payable date
Fee structure: Based on combination of asset value and individual services

RICHFIELD BANK & TRUST CO.
6625 Lyndale Ave. So.
Richfield, MN 55423
Contact: John L. Simpson, VP and trust officer, (612) 861-8307

Number of separate master trust clients: 0
Number of directed trust clients: 685
Master trust assets: 0
Directed trust assets: $90 million
Custodial employee benefit assets: $30 million
Total employee benefit assets: $160 million
Number of separate portfolios: 400
Average number of accounts per account supervisor: 100
Average number of portfolios per investment manager contact: 4-5
Accounting system utilized: Trade date (full accrual) for cash, contractual settlement date with pending adjustment (on purchases), actual delivery date (on sales)
Fail float credit provided: No
Short-term instruments used: Money market funds, T-bills
Date short-term interest credited: Monthly
Timeliness of reporting package: 60 days
Services provided: Portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: On actual receipt
Fee structure: Based on combination of asset value and individual services

ROYAL TRUST CORPORATION OF CANADA
P.O. Box 7500, Station A
Toronto, Ontario M5W 1P9
Contact: M. Fraser Blakely, VP, pension & custodial services, (416) 864-6398

All figures are in Canadian dollars
Number of separate master trust clients: 133
Number of directed trust clients: 968
Master trust assets: $22.4 billion
Directed trust assets: $26.2 billion
Custodial employee benefit assets: $2.6 billion
Total employee benefit assets: $51.2 billion
Number of separate portfolios: 2,385
Average number of accounts per account supervisor: 170
Average number of portfolios per investment manager contact: 10
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: No (guaranteed contractual date settlement)
Short-term instruments used: All (as selected by manager)
Date short-term interest credited: Short-term fund not offered; interest calculated on daily balances, paid month end
Timeliness of reporting package: 10-20 business days (to client's requirements)
Services provided: Performance measurement, participant recordkeeping, securities lending, benefit disbursement, global custody, domestic and foreign management, on-line inquiry/data entry, downloading, asset/liability forecasting
Policy for crediting dividends and interest: On pay date in automatic credit
Fee structure: Based on combination of asset value and individual services

SEAFIRST BANK
701 Fifth Avenue
Seattle, WA 98104
Contact: Steven A. Horman, VP, (206) 358-3297

Number of separate master trust clients: 8
Number of directed trust clients: 200
Master trust assets: $158 million
Directed trust assets: $680 million
Custodial employee benefit assets: Not provided
Total employee benefit assets: $1.5 billion
Number of separate portfolios: 350
Average number of accounts per account supervisor: 88
Average number of portfolios per investment manager contact: 15
Accounting system utilized: Trade date (full accrual), contractual settlement date
Fail float credit provided: Not stated
Short-term instruments used: STIF
Date short-term interest credited: Third business day of following month
Timeliness of reporting package: Not provided
Services provided: Performance measurement, participant recordkeeping
Policy for crediting dividends and interest: On payable date
Fee structure: Based on combination of asset value and individual services

STATE STREET BANK AND TRUST COMPANY
One Monarch Drive (W5B)
North Quincy, MA 02171
Contact: John G. Houlihan, Sr. VP, (617) 847-7490

Number of separate master trust clients: 210
Number of directed trust clients: Included with master trust clients
Master trust assets: $93.2 billion
Directed trust assets: Included with master trust assets
Custodial employee benefit assets: $97.7 billion
Total employee benefit assets: $190.9 billion
Number of separate portfolios: 1,708
Average number of accounts per account supervisor: 4
Average number of portfolios per investment manager contact: 5
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Yes
Short-term instruments used: STIF, Government STIF, Maturity Plus STIF, Stock Performance Index Futures Fund (SPIFF, SPIFF Plus and others), Synthetic STIF, Institutional Liquid Assets, The Merrill Lynch Fund
Date short-term interest credited: Second business day after month end
Timeliness of reporting package: 5-7 business days after month end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, asset management services, global custody network with multicurrency accounting, plan accounting, pool accounting, 401(k), 501(c)(9), etc. services, plan advisory services, on-line client access, performance measurement and analytics, client report formatting capabilities, daily pricing, real estate accounting
Policy for crediting dividends and interest: As received
Fee structure: Based on asset value, transaction volume and individual services performed

THE SUMITOMO BANK OF CALIFORNIA
320 California Street
San Francisco, CA 94104
Contact: Bob R. Otani, VP and trust mgr., (415) 445-8090
Number of separate master trust clients: 0
Number of directed trust clients: 450
Master trust assets: 0
Directed trust assets: $150 million
Custodial employee benefit asset value: $50 million
Total employee benefit asset value: $200 million
Number of separate portfolios: 550
Average number of accounts per account supervisor: 150
Average number of portfolios per investment manager contact: 6
Accounting system utilized: Actual delivery date
Fail float credit provided: No
Short-term instruments used: Money market funds
Date short-term interest credited: Last day of month
Timeliness of reporting package: Within two weeks of reporting period
Services provided: Benefit disbursement
Policy for crediting dividend and interest: As received through Depository Trust Company
Fee structure: Based on combination of asset value and individual services

TRUST COMPANY BANK
P.O. Box 4655
Atlanta, GA 30303
Contact: Paul L. Robertson, III, VP, (404) 588-7319

Number of separate master trust clients: 12
Number of directed trust clients: 35
Master trust assets: $941 million
Directed trust assets: $466 million
Custodial employee benefit asset ... billion
Total employee benefit assets: $3.3 n... on
Number of separate portfolios: 72
Average number of accounts per account supervisor: 7
Average number of portfolios per investment manager contact: 12
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: Short-term investments company
Date short-term interest credited: Monthly
Timeliness of reporting package: Accounting statements within 10 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: On payable date in Federal funds
Fee structure: Based on combination of asset value and individual services

UNITED MISSOURI BANK OF KANSAS CITY, N.A.
1010 Grand
P.O. Box 419226
Kansas City, MO 64141-9946
Contact: Nancy J. Byers, VP, (816) 556-7474

Number of separate master trust clients: 36
Number of directed trust clients: 354
Master trust assets: $1 billion
Directed trust assets: $800 million
Custodial employee benefit assets: $2.1 billion
Total employee benefit assets: $2.4 billion
Number of separate portfolios: 90
Average number of accounts per account supervisor: 25
Average number of portfolios per investment manager contact: 5
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: No
Short-term instruments used: Short-Term Money Market Fund and UMB Money Market Fund are primary. Other secondary instruments also used
Date short-term interest credited: First day of month for preceding month's interest
Timeliness of reporting package: 2-21 days, dependent on assets held
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: On payable date in cash or in kind
Fee structure: Based on combination of asset value and individual services

U.S. NATIONAL BANK OF OREGON
P.O. Box 3168
Portland, OR 97208
Contact: Marcia A. Bennett, VP and mgr., (503) 275-7346

Number of separate master trust clients: 4
Number of directed trust clients: 70
Master trust assets: $276 million
Directed trust assets: $565 million
Custodial employee benefit assets: $190 million
Total employee benefit assets: $965 million
Number of separate portfolios: 46
Average number of accounts per account supervisor: 15
Average number of portfolios per investment manager contact: 65
Accounting system utilized: Contractual settlement date, trade plus seven
Fail float credit provided: Yes
Short-term instruments used: Money market funds, master notes, commercial paper
Date short-term interest credited: Third business day of month for prior month's investment
Timeliness of reporting package: Statements: Fifth business day of month
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: On specified pay date in credit to owner account
Fee structure: Based on combination of asset value and individual services

UNITED STATES TRUST COMPANY
45 Wall Street
New York, NY 10005
Contact: Robert Pagano, VP, (212) 806-3834

Number of separate master trust clients: 19
Number of directed trust clients: 133
Master trust assets: $7.8 billion
Directed trust assets: $6.4 billion
Custodial employee benefit assets: $3 billion
Total employee benefit assets: $17.2 billion
Number of separate portfolios: 465
Average number of accounts per account supervisor: 93; 30 relationships
Average number of portfolios per investment manager contact: 58
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Yes
Short-term instruments used: STIF: Demand notes
Date short-term interest credited: Third business day of month
Timeliness of reporting package: Monthly - 7 business days
Services provided: Performance measurement, portfolio analysis, securities lending, ERISA disclosure assistance, benefit disbursement, index fund
Policy for crediting dividends and interest: On payable date in Fed funds
Fee structure: Based on individual services performed

VALLEY NATIONAL BANK OF ARIZONA
241 N. Central Avenue
P.O. Box 71
Phoenix, AZ 85001
Contact: Paul W. Knowles, VP, (602) 261-1545

Number of separate master trust clients: 1
Number of directed trust clients: 220
Master trust assets: $273 million
Directed trust assets: $305 million
Custodial employee benefit assets: $563 million
Total employee benefit assets: $867 million
Number of separate portfolios: 200
Average number of accounts per account supervisor: 90
Average number of portfolios per investment manager contact: 250
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: No
Short-term instruments used: Short-term investment company, Federated, GMAC
Date short-term interest credited: First
Timeliness of reporting package: 15 days
Services provided: Performance measurement, portfolio analysis, portfolio review
Policy for crediting dividends and interest: On payable date
Fee structure: Based on combination of asset value and individual services

WELLS FARGO BANK
111 Sutter Street, 10th Floor
San Francisco, CA 94163
Contact: Alan Kizor, Sr. VP, (415) 399-7696

Number of separate master trust clients: 0
Number of directed trust clients: 700
Master trust assets: 0
Directed trust assets: $4.5 billion
Custodial employee benefit assets: $500 million
Total employee benefit assets: $5.2 billion
Number of separate portfolios: 1200
Average number of accounts per account supervisor: 175
Average number of portfolios per investment manager contact: 100
Accounting system utilized: Contractual settlement date
Fail float credit provided: No
Short-term instruments used: In-house money market type fund comprising commercial paper, acceptances, CDs, Treasuries, etc.
Date short-term interest credited: Last business day
Timeliness of reporting package: 1 week after period close
Services provided: Benefit disbursement, index fund, market inventory fund
Policy for crediting dividends and interest: On payable date; advanced by computer automated accounting system
Fee structure: Based on combination of asset value and individual services

Perspective On Investments

Why some plan sponsors invest in index funds

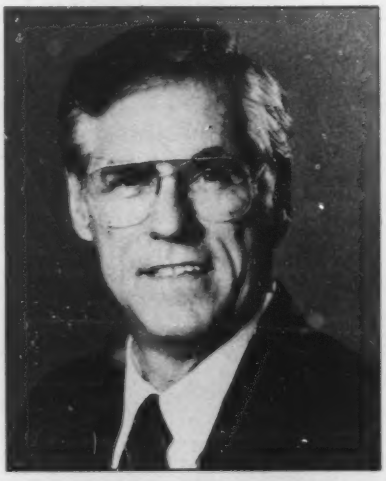
This column was written in early October 1987. Subsequent events in the financial markets may have changed the outlook for index funds. We elected not to change the substance of this column but to leave it as written.—Ed.

With approximately $200 billion of employee benefit plan monies now indexed, and with this passive pool growing in size each month, an ERISA fiduciary is compelled to examine the advantages of this investment alternative. Since Sec. 4.04(a)(1)(b) of ERISA requires that fiduciaries of employee benefit plans conduct themselves "under the circumstances then prevailing that a prudent man acting in a like capacity and familiar with such matters would use, in the conduct of an enterprise of a like character and with like aims," and since so many sponsors have now redeployed monies to this passive investing alternative, it behooves all fiduciaries to examine how adding the indexing strategy to their investment operations would impact their fund's risk/reward posture.

Ten years ago, in their treatise *Market Funds and Trust-Investment Law* (American Bar Foundation Research Journal), Professors Langbein and Posner (University of Chicago) said, "When market funds have become available in sufficient variety and their experience bears out their prospects, courts may one day conclude that it is imprudent for trustees to fail to use such vehicles. Their advantages seem decisive: at any given risk/return level, diversification is maximized and investment costs minimized. A trustee who declines to produce such advantages for the beneficiaries of his trust may in the future find his conduct difficult to justify."

Index funds are now available for any given level of risk deemed appropriate; they have proved that they can provide competitive rates of return and that productivity is available at a relatively low cost. Thus, as the professors predicted a decade ago, asset allocation policy reviews should include an examination of the index alternative to be fully defensible.

It was also ten years ago that Warren Buffett was quoted as having said, "investors . . . don't just buy and hold. Instead, many try to outwit their fellow investors in order to maximize their own proportion of corporate earnings. This thrashing about, obviously fruitless in the aggregate, has no impact on the equity coupon, but reduces the investor's portion of it because he incurs substantial frictional costs such as advisory fees and brokerage charges." Although Mr. Buffett, through Berkshire Hathaway, has distinguished himself both as a patient investor and an astute analyst, other less effective investors are increasingly embracing the indexing alternative because they have become convinced of the futility in attempting to add value through active investment operations, in part due to the "thrashing about" observed by Mr. Buffett.



by **EUGENE B. BURROUGHS**
Senior Advisor
Prudential Asset Management Co., Inc.
San Diego, Calif.

Responsible research reveals that, on a total return basis, most managers' equity portfolios have been outperformed in recent years by the S&P 500 (Table 1). Not all, just most. In addition to the high cost of frequent trading, a sponsor is vulnerable to other investors' disenchantment with that part of the market his manager has chosen to emphasize.

Although some managers have done an outstanding job during this time, the average plan sponsor has found it difficult to identify that manager who will provide superior performance *after* he is retained. The sponsor's problem is further complicated when, for good business reasons, he chooses to retain several managers.

Appeal of index funds

The index fund concept appeals to the pension sponsor not merely because it reduces the "substantial frictional cost" of the thrashing about referred to by Buffett but because it also reduces the high cost of switching managers. Investment consultants estimate that the cost of switching managers can run as high as 10 percent.

Thus many sponsors are coming to the conclusion that they should allocate a portion of their plan to an index fund, diversifying their common stock allocation between an index representing the systematic components of investment risk and an active manager(s) representing specific risk. By indexing a portion of a larger fund or the entire amount of a smaller fund, sponsors

Table 1 Comparison of Investment Returns

Period Ended May 31, 1987	S&P 500	Wilshire 5,000	Median Equity Manager
1 Year	20.9%	16.5%	13.9%
3 Years	29.4	27.8	24.5
5 Years	26.2	24.8	22.5
10 Years	17.1	17.8	16.0

Table 2 Top Twelve Holdings in the S&P 500 as of December 31, 1986

Stock	% of Portfolio
IBM	4.3%
Exxon	2.9
General Electric	2.3
AT&T	1.6
Royal Dutch	1.5
Dupont	1.2
General Motors	1.2
BellSouth	1.1
Amoco	1.0
Merck	1.0
Mobil	1.0
Philip Morris	1.0
% of Total	20.9%

Table 3 Sector Diversification of the S&P 500 as of December 31, 1986

Sector	% of Portfolio
Technology	14.9%
Consumer Staples	14.0
Consumer Discretionary	13.2
Energy	12.8
Utilities	11.5
Health	8.0
Finance	7.3
Durables	7.2
Materials & Processing	6.7
Transportation	2.3
Building	1.9

can assure themselves that no investment method or manager will prevent their funds from realizing their fair share of the return from indirect ownership in corporate America.

It is not surprising that the funds most heavily committed to indexing are the "megabucks" public funds: New York, California, Maryland, Minnesota, etc. Fiduciaries supervising these monies have undoubtedly concluded that because of their billions in stock ownership, they are "the market." Though much smaller in size, large corporate funds such as Ford, IBM, Exxon and the "baby Bells" are significant indexers also. Conspicious by their absence as indexers are the jointly-trusteed plans. However, if past management practices are an indication of the future, it is only a matter of time before the larger Taft-Hartleys embrace indexing as a reasonable alternative.

The ultimate endorsement of indexing is the decision by the federal government's recently-appointed group of overseers for the Civil Service Retirement System to provide to participants who choose to allocate a portion of their monies to common stocks only an index fund. If the federal government's endorsement is not enough, then one can additionally cite IBM's decision to invest passively 75 percent of its benefit fund. Those executives who have successfully mastered the computer have apparently concluded that although the monies accumulated in the plan are an asset, managing active managers has for them been a liability.

What index funds are

An index fund or account is comprised of securities which in the aggregate will produce a return replicating (or substantially replicating) a designated securities index. If certain proprietary techniques are added to the replicating process to achieve a premium return above the designated index, it is commonly referred to as "index-plus" or "enhanced indexed" investing.

Index funds are used by plan sponsors because of the perceived advantages of increased diversification, avoidance of manager risk, lower transaction costs, lower management fees and certainty in matching risk/reward tradeoffs. During the "adolescent" years of indexing, the index most frequently designated by sponsors for replicating has been the Standard & Poor's 500-Stock Index. Since the performance measurement community has traditionally used this index as the "bogey to beat," perhaps the sponsors have concluded, "if we can't beat it, let's join it."

The Standard & Poor's 500-Stock Index consists of a value-weighted average of 500 important stocks (as defined by Standard & Poor's). Since each stock in this index is weighted by the market value of its outstanding shares, and because it is comprised primarily of stocks with large capitalizations, the S&P 500 represents the results obtained in the overall stock market fairly well. The S&P 500 is, however, based on a sample of the stock market (largely NYSE stocks). By contrast, the Wilshire 5000 equity index reflects the performance of all U.S. common equity securities for which price data are readily available. Specifically, the Wilshire 5000 index tracks the returns of securities listed on the AMEX and OTC exchanges as well as NYSE securities. Consequently, compared to the S&P 500 index, the Wilshire index provides a broader gauge assessment of the overall performance of U.S. equities. The S&P 500 index outperformed the Wilshire 5000 index over the past one, three and five years, but underperformed over the longer ten-year span.

One of the compelling reasons that the S&P 500 has been a favor-

ite is because of its company and sector weightings (Tables 2 and 3). Sponsors have thus concluded that this index adequately reflects the market.

Early pioneers in the implementation of the academic research in indexing were William Fouse of Mellon Capital Management, Dean LeBaron of Batterymarch and Rex Sinquefield of Dimensional Fund Advisors. It is gratifying to note that both the "founders" and the "fad" they helped to create are continuing to thrive in the present marketplace. In the formative years of indexing, in the early '70s, most sponsors who embraced the "fad" did so more from intuitive convictions than from analysis. The index funds were new and no one could be assured as to the destiny of their returns. One could only hope that the technicians piloting the funds would in reality replicate the returns achieved by the passive indices.

The premium effect

Heretofore we have been aware that stock index funds often enjoyed a slight premium over the referenced index through securities lending operations and activities related to tender offers involving indexed securities. We also have been made aware by the performance measurer that sponsors participating in the S&P 500 have generally enjoyed a higher relative return *and* lower relative variability when compared to active managers. Variability of quarterly returns of the S&P 500 for five years ended December 31, 1986, was 15.5 percent versus the median manager's variability of 17.7 percent. Since the S&P 500 achieved +19.9 percent return (outperforming 59 percent of the equity database), the S&P 500 provided both the sought-after characteristics of high relative return and lesser attendant risk.

It now appears, from research recently shared publicly by the BARRA consulting firm, that those sponsors who allocated their monies to replicate the S&P 500 received a premium return over other investors who invested in similar stocks. The significant difference was simply that these similar stocks were not included in the S&P 500 Index. According to BARRA, "Stocks included in the S&P 500-Stock Index have outperformed similar stocks not included in the index by +3.25 percentage points a year since 1980." Reasons postulated for the premium return are:

- the demand created by the growth in indexing;
- the attraction of foreign investors to the well-known names included in the index; and
- the increasing use of index futures.

Thus, what had been a defensive tactical reallocation to eliminate investment management risk has turned out to be a "value adding" strategy. The excess return achieved by participants in S&P 500 index funds was most likely also accompanied by lower relative management fees. Occasionally anomalies do exist in the markets; the heightened demand for the stocks included in the index provided a "free lunch" at least for the 1980-1986 period. If a bear market ensues, however, sponsors fleeing the index accounts may place selling pressures on these stocks resulting in larger negative returns than from similar stocks.

Source of comfort

If imitation is the sincerest form of flattery, then replication may be the greatest source of comfort, especially for the sponsor who suddenly has found himself victimized by discontinuity in the management of a portion or all of his funds. Until the advent of the index fund alternative, the sponsor was entirely vulnerable to a significant change in personnel assigned to his account, to the not-so-subtle changes in investment philsophy, to the dissolution of the investment management firm or to poor internal management controls within the organization itself. In addition to these concerns, a sponsor may find that his manager has committed all his funds to a specific homogeneous group of stocks which is not selling at a premium. Furthermore, a massive redeployment of stocks to cash reserves and back to stocks can be ill-timed and unnecessarily expose assets with long-term objectives to short-term realized losses.

In resolving their fiduciary responsibility, pension fund sponsors are also looking to indexing to help them reduce their administrative costs. The quest for cost control is also a plea for passivity and elimination of the high cost of switching managers. The relative ease of entry into and exit from the market with an index fund has helped those sponsors concerned with reducing costs. The use of index funds also facilitates periodic adjustments to the stock/bond ratio without interrupting the discretionary management process exercised by common stock counselors.

One of the redeeming features of indexing is that such broad diversification and continuing commitment to the market enable your monies to participate in upward valuation surprises, whenever they may occur. Indexing exploits the randomness of stock prices; indexing and randomness skip along together over time oblivious to shorter cyclical revaluations, choosing instead to capture longer-term value enhancements.

Commitment to mediocrity?

Many plan sponsors dismiss the indexing alternative as a commitment to mediocrity. These sponsors must select investment managers who are successful in adding value. The sponsor is competing with himself, while the managers are competing with other managers. The managers' selections must add value above the market alternative. Choosing successful managers and successfully managing portfolios are possible, but each supervising group must assess their probability for success.

One of the pitfalls of indexing is the plan sponsor's lack of control over the makeup of any given index. The sponsors of the index control the destiny of its makeup: for reasons of their own, significant changes can be made. For instance, an analysis performed by Salomon Bros. determined that a major restructuring of the S&P 500 some years ago (46 additions, 46 deletions) resulted in the additions achieving +3.7 percent while those deleted achieved +32.6 percent over the ensuing two years. Those portfolios who had chosen to replicate the index were subjected to the results of a decision made out of their control.

Index strategies are also being applied to foreign equities. Although foreign stock markets are considered less efficient than our markets, and thus theoretically more exploitable from specific research, they have other characteris-

Investment column

Continued from page 69

tics that encourage an index approach. Liquidity constraints impede timely reallocation, transaction costs are high, and the risk of losing the non-covariant advantage through manager selection error are all characteristics that encourage sponsors to embrace indexing, at least in part, when investing overseas.

With the explosive growth in indexing, it is not surprising that many financial institutions now provide a variety of indexed and otherwise passively supervised portfolios. According to a recently-published listing, the ten organizations supervising the largest amounts of indexed assets are Alliance Capital Management, American National Bank and Trust, Bankers Trust, Dimensional Fund Advisors, Mellon Capital Management, Northern Trust, Prudential Asset Management, State Street Bank and Trust, Wells Fargo Investment Advisors and Wilshire Asset Management. Small employee benefit plans and individuals can index through the First Index Investment Trust mutual fund offered by the Vanguard Group (Valley Forge, Pa.) to replicate the returns of the S&P 500. The Bench Blue-Chip Portfolio fund (New Jersey) replicates the Dow Jones Industrial Average.

The future

Will sponsors continue to redeploy increasing monies to indexing? That will depend upon the future success (or unsuccess) of active managers to add value from trading securities. The genesis for the flurry of stock indexing in 1986 could very well have been managers' very poor relative performance in 1984 when three-fourths of the managers failed to match the return of the S&P 500. Sponsors reflected on these dismal results, evaluated indexing as a viable alternative, and pushed for committee approval in 1985, implementing their redeployment to passive strategies in 1986.

Now that the indexing "snowball" is rolling, active management will have to provide value above passive results to reverse the trend. It just may take a bear market to provide the environment for the managers to regain the competitive edge. □

Cases & Rulings

Continued from page 64

an independent election to receive coverage. If a qualified beneficiary who is either a covered employee or the spouse of a covered employee makes an election to receive COBRA continuation coverage on behalf of another qualified beneficiary, the election shall be binding on the other qualified beneficiary. However, one spouse cannot effectively decline COBRA coverage on behalf of another spouse.

23. Id. at Q & A 41.

24. OBRA Sec. 9501.

25. Id. at Q & A 40; Q & A 41. Coverage provided to a qualified beneficiary after a qualifying event other than as required by COBRA (e.g., as a result of state or local law, or plan procedure) will not extend the maximum coverage period, which continues to date from the qualifying event. Alternative coverage that satisfies the requirements of COBRA continuation coverage (e.g., provision of all benefits for a limited period at no charge) can be credited toward satisfaction of the 18- or 36-month maximum coverage period. However, if the alternative coverage fails to satisfy all the requirements for COBRA, the group health plan will not be in compliance with COBRA unless a qualified beneficiary is also offered the opportunity to elect COBRA continuation coverage.

26. Id. at Q & A 48. However, payment made to the plan by a later date also is considered as being made timely if either (i) under the terms of the plan, covered employees or qualified beneficiaries are allowed until that later date to pay for their coverage during the period, or (ii) under the terms of an arrangement between the employer and an insurance company or HMO, the employer or plan is allowed until that later date to pay for coverage of similarly situated employees during that period.

27. Id. at Q & A 45.

28. Id. at Q & A 9(a).

29. Id. at Q & A 9(b) and (c). In determining the number of its employees, an employer shall include all full-time and part-time employees, including self-employed individuals (within the meaning of Section 401(c)(1) of the Code). An employer also shall treat as employees for this purpose all agents and independent contractors (including their employees, agents and independent contractors), and all directors (in the case of a corporation), but only if such individuals are eligible to participate in a group health plan maintained by the employer.

30. COBRA Sec. 10001(e)(1).

31. COBRA Sec. 10001(e)(2).

32. 52 Fed. Reg. 22716, *supra* note 2, at Q & A 12.

33. Id. at Q & A 6.

34. Id.

Twelve questions

Continued from page 36

7. What is your compound annual rate of return for the last five years? Compound annual rate of return numbers can be very misleading, so I recommend that before you begin comparing them, first find a consultant to assist you with your money manager search.

In enlisting his services, you are gaining the experience and resources of a whole team of professionals who make their living visiting various money management firms to "kick the tires." They audit the books to assure that reported track records are factual and representative of all accounts, not just a handful of the best performing. They do the due diligence on a money manager that you simply can't. Any managers brought to your attention by a consultant will already have been screened and you'll know their reported compound annual rate of return is accurate.

Once you have enlisted the services of a consultant, he can help you establish a minimum and realistic annual rate of return that is acceptable to you so it can be given to a money manager as a target. This minimum must be carefully thought out in light of what has been produced historically by the S & P, the Dow Jones stocks, the OTC indices and the various bond indicators.

Once you've established this minimum annual rate of return, decide what investment style would best suit you to achieve that target.

A pure equity account might get you to your target sooner than a bond account, but it entails greater fluctuations and perhaps more anxiety than you're willing to accept.

Once these decisions are made, you are ready to have your consultant introduce you to a few money managers who can get the job done within the context of your guidelines. Your consultant can help you compare the compound rates of return of various money managers with the proper indices.

These compound rates of return should extend back to the last down market to determine how a manager performs in adverse market conditions. When projecting these figures, take into consideration the difference in the world economy between now and 10 years ago.

Current Issues In Plan Design

A plan sponsor's approach to AIDS

During the past year there has been heated talk about the effect of AIDS on the financial security of health plans. Because much of the talk reflects fears and myths about an illness which was unknown just seven years ago, and because the media continue to focus on AIDS and its victims, health plan sponsors are justifiably concerned about the potentially adverse financial effects AIDS many have on their health plans. Plan sponsors have generally responded in one of two ways: an "ostrich" approach—it cannot happen to us—or a "running scared" approach—we should cut benefits to the bone.

A more sensible approach, however, is to develop a formal benefits strategy that addresses aspects common to all catastrophic claims. This strategy can help to target cost control mechanisms which are geared toward those small number of claims that may consume the largest share of the health care dollar. Catastrophic cases—such as leukemia, brain injuries and AIDS—have the potential of becoming both costly and long-lasting.

Health plan sponsors should take two steps in formulating an approach to AIDS. First, separate fact from fiction. Take the time and effort to learn about the disease and how it is contracted and treated. Then, use this knowledge as a basis for analyzing the work force's particular needs and developing the appropriate benefits strategy.

It's not going away

The first diagnosed case of AIDS—which is caused by one of two known viruses that enter the bloodstream either through sexual contact, contaminated hypodermic needles or contaminated blood—was reported in 1981. Since then, there have been more than 40,000 cases of AIDS reported. The number of AIDS cases appears small compared to reports of other catastrophic illnesses. For instance, there were 40,000 organ transplants in 1986 and over 900,000 cases of cancer diagnosed last year. What is unique about AIDS, however, is the rapid spread of this disease. In a matter of six years, an estimated 1.5 million citizens have been identified as being infected by the virus. However, although infected, not everyone will develop the disease. Inadequate experience with AIDS prevents accurate predictions. There are estimates that between five and 70 percent of those infected will go on to develop either AIDS Related Complex (ARC)—a less severe disease which is often the precursor to AIDS—or AIDS.

By 1991, it's projected that 324,000 Americans will contract AIDS. Whether they are male or female, most of today's AIDS victims are young, usually 20 to 40 years of age (see Table 1). Because AIDS continues to attack the young, productive working population, the effects of the illness will be increasingly felt by plan sponsors. And, because the AIDS viruses have an incubation period of six months to five years, there is no way to predict who will fall ill. This uncertainty makes it particularly difficult for health plans to estimate the impact AIDS will have.

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As it spreads through the population, AIDS is also crossing geographic boundaries. AIDS was once thought to be the burden of major metropolitan regions in California, New York, Texas and Florida. Increasingly, though, cases of AIDS are now beginning to show up in all 50 states. While California, New York and Texas report the greatest number of AIDS cases, states such as Alabama, Oklahoma, Wisconsin and West Virginia are experiencing the highest percentage increase in cases (see Table 2). These numbers suggest that, nationwide, health plans may soon have to respond to what was once thought of as an isolated disease.

Reports of claims in excess of $100,000 for AIDS patients have alarmed many plan sponsors. An initial Centers for Disease Control (CDC) report based on the first 10,000 AIDS cases set hospital costs at more than $140,000 per case. However, another study conducted jointly by the American Council of Life Insurance and the Health Insurance Association of America, and based on more recent data, revealed an average AIDS claim of $36,160. Within such a short span of time, what has happened to affect the cost of care so dramatically? One hypothesis is that health insurers and health plans have adopted cost effective approaches to manage AIDS cases, identifying lower cost alternatives to expensive hospital stays, thus reducing the largest cost component of care for AIDS cases.

Armed with current knowledge

Table 1 **Age of AIDS Patients at Diagnosis**

Age Group	Cumulative Number (%) October 5, 1987	
Under 5	507	(1%)
5 - 12	76	(0%)
13 - 19	170	(0%)
20 - 29	8,861	(21%)
30 - 39	19,720	(47%)
40 - 49	8,808	(21%)
Over 49	4,211	(10%)
Total (% of all cases)	42,354	(100%)

Cases reported to Centers for Disease Control, according to AIDS Weekly Surveillance Reports, Center for Infectious Diseases, Centers for Disease Control.

about the disease, plan sponsors can pick a strategy that best meets a plan's individual needs. The objective should be to coordinate and organize health care resources that address an AIDS patient's specific medical problems while minimizing a plan's financial risk. Sponsors generally consider one of three options to control medical costs: redesign the health plan, change plan administration or institute cost management techniques. Plan redesign may include reductions in the lifetime maximum, coverage exclusions or cutbacks in benefits. Changes in administration that limit eligibility by medically screening new members is another approach. The third option involves implementing a managed care approach that assures the most effective use of available health care dollars.

Plan redesign that reduces or cuts those benefits that are most adversely affected by potential losses may seem to be the most immediate solution to reducing financial risk. However, a reduction in the lifetime maximum may not control medical costs that fall below the maximum. Several claims for $50,000 instead of $100,000 may still put a plan at financial risk. Because recent AIDS studies suggest the cost of many AIDS cases range from $30,000 to $50,000, a lowered lifetime maximum may not eliminate this liability. Second, limiting or excluding benefits for specific medical conditions such as infectious diseases may become an administrative nightmare. How will the plan office go about compiling a list of all infectious diseases for a claim processor to follow? Such restrictions limit coverage for the entire group. Will the child who catches measles at school also be excluded? And, will restrictions on coverage for AIDS also limit coverage for other catastrophic and potentially costly conditions such as heart disease, cancer, birth defects, head injuries or renal disease? Also, exclusions targeted specifically towards AIDS-related illnesses may be even more difficult to administer since early symptoms of AIDS such as tiredness, loss of appetite, diarrhea or swollen glands are symptoms that are common to other illnesses as well.

"Overall, the number of catastrophic claims is usually a small percentage of total claims. It has been estimated that as few as three percent of all insured lives consume 40 percent of health care dollars."

A plan sponsor might also consider changing the plan's administrative guidelines to include screening devices that test participants for the AIDS antibodies. Some insurance carriers have been requiring AIDS antibody tests before issuing individual health insurance policies. It should be noted, however, that the use of antibody tests is highly controversial. Current screening tests do not diagnose AIDS. They only identify individuals who have been exposed to the AIDS virus. Since symptoms of the disease may not show up for several years, the tests cannot predict future illness or even the eventual presence of the AIDS virus. Also, many public interest groups representing those who are at risk have protested the use of antibody tests as a form of discrimination against individuals in high-risk categories. California and Washington, D.C. supported this position by passing legislation or regulations that restrict insurance carriers, unions and employers from using these tests for certain insurance and employment purposes. Self-insured groups interested in screening tests should be made aware that this option is both controversial and wrought with complicated legal issues.

Managed care

Overall, the number of catastrophic claims is usually a small percentage of total claims. It has been estimated that as few as three percent of all insured lives consume 40 percent of health care dollars. A coordinated effort to organize health care resources, addressing the specific needs of a catastrophic case, can minimize financial risk while causing the least disruption in plan design. Health plan administrators looking for cost controls are turning to health care cost management techniques that focus on case management of catastrophic illnesses. The managed care approach may foster the most effective use of health benefit dollars.

Managed care involves devoting individual attention to the particular patient and his or her disease or medical condition, and examining all available treatment options. A managed approach for AIDS patients begins with early identification of the disease. Individual case management is then used to assist in treatment decisions, such as the need for hospitalization and the possibility of using home and hospice care.

Individual case management is a process by which a case coordinator, usually a registered nurse, works with the patient, the family and attending medical professionals to assure the most appropriate, cost effective, coordinated system of care. Case management can reduce hospital costs by arranging for alternative outpatient care in the patient's home, in an extended care facility, or in special facilities such as rehabilitation centers and hos-

Table 2

Where AIDS Is Spreading Fastest

AIDS Cases by State*	Year Ending October 5, 1986	Year Ending October 5, 1987	Share of U.S. Total	Increase (10/5/86 to 10/5/87)
Top Five States with Highest Number of AIDS Cases:				
1. California	2798	3790	(22.9%)	35.4%
2. New York	3483	3751	(22.7%)	8.3%
3. Texas	678	1345	(8.2%)	98.8%
4. Florida	764	1201	(7.3%)	57.2%
5. New Jersey	719	868	(5.3%)	20.8%
Top Five States with Highest Percentage Increase of AIDS Cases:				
1. Alabama	25	98	(0.6%)	276.9%
2. Oklahoma	34	95	(0.6%)	179.4%
3. Wisconsin	34	82	(0.5%)	141.2%
4. West Virginia	8	19	(0.1%)	137.5%
5. Oregon	56	114	(0.7%)	103.6%

*Including District of Columbia, according to AIDS Weekly Surveillance Reports, United States AIDS Program, Center for Infectious Diseases, Centers for Disease Control.

pices. In many circumstances, a comprehensive range of services, such as skilled nursing care, intravenous drug therapy, physical therapy, medication or homemaker services, can be administered to a patient in his or her home. When a patient can be treated at home, he or she benefits from the comfort and convenience of remaining out of the hospital. Avoiding hospitalization is particularly important for AIDS patients because hospitalization may be required with increasing frequency as symptoms become more severe.

Case management is usually provided as an added benefit on an as-needed basis. The patient is free to refuse or accept case management. While the cost for AIDS case management is approximately $2,000 to $6,000 per case, the savings can be substantial. One Miami hospital has produced major savings through their AIDS case management program by reducing the number of hospitalizations to an average of 2.5 per patient, with an average length of stay of approximately 11 days per hospitalization. In comparison, before case management, the average AIDS patient was hospitalized an average of three times, each hospitalization lasting just less than 25 days.

As mentioned earlier, a key component of the managed care approach is home and hospice care.

"One Miami hospital has produced major savings through their AIDS case management program by reducing the number of hospitalizations to an average of 2.5 per patient, with an average length of stay of approximately 11 days per hospitalization."

Home care and hospice coverage are less expensive and certainly more comfortable than hospital care for many patients. The cost of care for an AIDS patient in a San Francisco hospice is $94 per day as opposed to a national average of more than $800 a day in a hospital.

The individual case management approach, emphasizing alternative settings, may require some benefit programs to waive their minimum hospital stay provision to allow patients access to less costly alternative care from the onset. A three-day hospital stay requirement prior to home or hospice care may add unnecessarily to plan costs.

To further reduce the cost of hospitalizations, an individual case management program can be paired with a pre-hospital admission certification program. The benefits are twofold. First, precertification provides early identification of potentially high cost cases, triggering case management. And second, the plan is assured that hospital care is delivered only when medically indicated.

Of the three options described here—plan redesign, changes in plan administration and managed care—only the managed care approach can be applied to all catastrophic cases. It seems to assure early and timely coordination of treatment options and provides assistance to patients and caregivers in making informed decisions. It also provides a support system during the time of greatest need.

As plan sponsors will be increasingly forced to find answers to difficult questions about AIDS and its impact on a plan's financial security, they must first examine all facts about AIDS and explore these three options in order to coordinate a benefits strategy that suits the particular needs of the work force involved. □

For additional information about case management, see "Current Issues in Plan Design: Individual case management provides assistance in serious illnesses," Pension World, February 1987, p. 52.—Ed.

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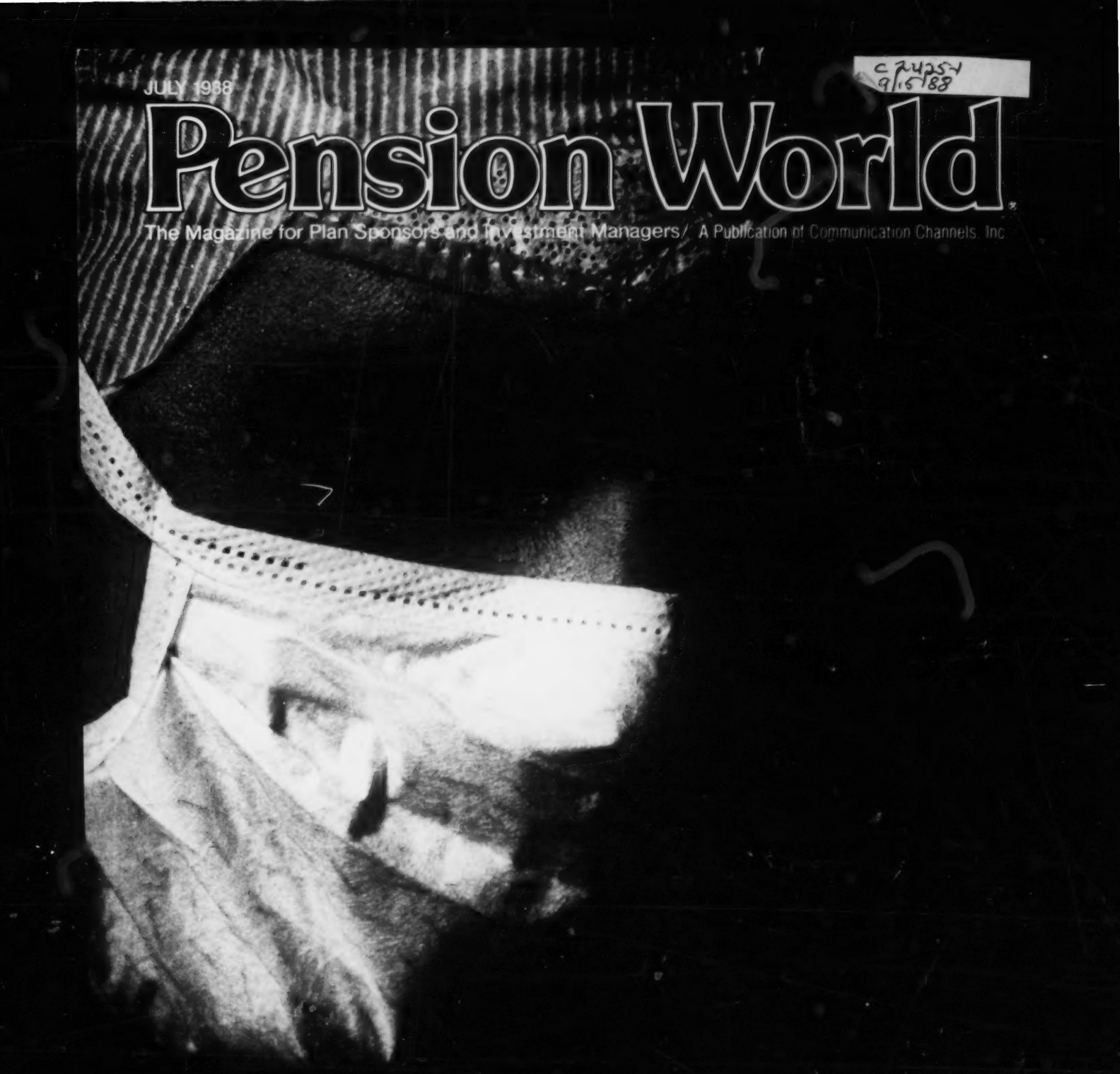

The Future of GICs

The High-yield Portfolio Market Comes of Age

Pension World

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Cover: **Photograph courtesy of Mercy Health Services of the South, Atlanta, Ga. An overview on the health-care industry begins on page 14.**

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BPA

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The high-yield bond market comes of age

Investors now can get more for less with a high-yield portfolio.

by **JAMES L. SULLIVAN**
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As the high-yield market continues to mature in terms of size, number of participants, and user understanding and ability, high-yield bonds will increasingly fulfill a number of varied portfolio goals that were previously unattainable with fixed-income investments.

For instance, a well-managed, high-yield bond portfolio can mimic in risk and performance each of the following types of "normal" portfolios. These portfolios include a growth-stock portfolio of either small capitalizations or traditional growth stocks; a balanced portfolio with percentage adjustments between both income and equity exposures based on market expectations; and a normal fixed-income portfolio.

Moreover, the high-yield portfolio has the added advantage of generating a higher income than each of the above, without adding perceived or defined risk. It is possible for the astute investor to enjoy the higher returns and avoid significant financial losses—despite the publicized magnitudes of the Texaco and LTV defaults and justified worries that default rates will accelerate dramatically in a recession.

Analyze all bonds

In today's financial environment, all markets are exposed to credit loss from principal-deterioration. This risk cannot be wholly attributed to the high-yield market. Whether investment-grade or high-yield, fixed-income investments must be carefully analyzed. In addition to their own credit research, investors may now utilize the zeta scores developed by Dr. Edward Altman, professor of finance at New York University and a consultant to Merrill Lynch's high-yield debt group, and MAD ratios developed by Drexel Burnham Lambert. Both measures can be applied to investment-grade securities.

It is the perceived default risk of "junk bonds" that has gained notoriety among pension-fund managers for these fixed-income investments. As shown in table A, when measuring rates of return against the actual gross default rate, the average 300 basis-point yield over "normal" bonds more than compensates for this controllable risk.

The new methodologies enable fund managers to manage risks more efficiently than at any time in financial history. Table B shows the historical default rates since 1970. While default rates have actually remained fairly steady over the long-term, the techniques developed by Dr. Altman and others mean the risk of financial loss in the high-yield market can be efficiently managed and somewhat reduced. The magnitude of default risk in credits can be monitored, and investors alerted, through the use of zeta scores.

However risk is measured, the magnitude of actual defaults is manageable when net recoveries are taken into account. Dr. Altman found that the actual rate of net loss from default during the years 1974 to 1986 was equal to 1.095 percent.

As the default risk of high-yield investments has become subject to control, the market risk of illiquidity has also diminished. The listed markets for stocks and government-bond markets have much greater liquidity than the high-yield market. However, the liquidity gap has narrowed greatly over the past three years and will continue to shrink as more money is committed to high-yield investments.

Liquidity is rapidly improving as the securities industry devotes more capital and staff to the market. National securities brokers with worldwide distribution capability, such as Merrill Lynch and Shearson Lehman Hutton, have steadily increased the number of their high-yield underwritings since 1982. Merrill Lynch, for instance, completed 25 deals in 1986 that raised $3.7 billion, compared to seven deals in 1982 that garnered $699 million. Even such traditional investment-banking firms as Morgan Stanley and First Boston are major participants in the market.

For high-yield investors, it is often harder to predict the timing of market performance. Since the market for high-yield investments still is new and encumbered by normal (and some abnormal) growing pains, the predictable results for each investment are often in question.

Risk is controllable and is more than compensated for by the returns in the high-yield market. During the years 1976 to 1986, for instance, Lipper Analytical Services found that 37 corporate A-rated bonds yielded 163 percent compared to 40 high-yield bonds that earned 175 percent during the same period. By way of comparison, 45 U.S. government bonds yielded 156 percent.

The benefits of high-yield investments, however, are not limited solely to the economic effects of higher yields. Such return differentials translate into significant dollar amounts, and this extra income will allow the pension/endowment administrator to redirect the total funds distribution. The added funds can be diverted to appropriate areas as determined by the market outlook and other pressures of the investment universe, permitting an investor to adjust the portfolio mix without having to sell asset positions.

One of the ongoing debates among account administrators concerns the proper distribution of their investments and the ability to monitor and adjust distribution of investment assets as market, economic or internal business requirements demand changes. The flexibility represented by high-yield cash flows enables the administrator to efficiently and economically make such portfolio adjustments.

While adding flexibility to the portfolio mix, these added funds also represent "surplus" cash in the investment account. The buildup of a surplus is particularly beneficial in view of the volatility of all markets and the threat of "silver bullets"—random events that can devastate an investment account, but that cannot be repelled, except by a buildup of cash. Silver bullets would include the early retirement of current employees due to business conditions, labor contracts that change benefits of retired employees, etc.

Comparing methodologies

With high-yield risks and rewards analyzed, a comparison can be made of portfolio methodology. First, the growth-stock portfolio with either small capitalization or traditional growth stock could be delineated by the following characteristics:

1. The stocks would have a low yield (if any). The stocks were not purchased for income purposes. With the current tax laws, there is no tax benefit to generating capital gains like there has been in the past.

2. In consort with Item (1), the portfolio emphasis is on market gain in individual holdings. Performance will be dependent on stock selection and subsequent positive market responses. The new tax may negate some appeal of this exclusive approach.

3. Attention is paid to the volatility of the portfolio and the individual stocks, because the emphasis for portfolio performance is based on Item (2). The higher the portfolio's volatility, the greater the assumed risk.

4. The analysis of growth stocks normally leads to securities with high price/earnings ratios. The P/E ratios would average 1½ times to 2½ times normal Dow Jones P/E ratios. The higher the P/E ratio, the greater the average risk of poor performance by the stock on any company disappointments.

Risk is, therefore, inherent in any growth-stock portfolio, because its orientation to performance is change in stock markets, and there is little cash flow generated from the portfolio that might act as a market-loss buffer.

TABLE A

HIGH YIELD SPREAD VS. TREASURIES:

1980	359 Basis Points
1981	362 Basis Points
1982	504 Basis Points
1983	332 Basis Points
1984	321 Basis Points
1985	362 Basis Points
1986	493 Basis Points
Average	390
Default Loss	97 Basis Points
Net Average	293

TABLE B

HISTORICAL DEFAULT RATES-LOW RATED, STRAIGHT DEBT ONLY

($ Million)

Year	Par Value Outstanding with Utilities	Par Value Defaulted	Default Rate
1986	$92,985	$3,155.76	3.394%
1985	59,078	992.10	1.679
1984	41,700	344.16	0.825
1983	28,233	301.08	1.066
1982	18,536	577.34	3.115
1981	17,362	27.00	0.155
1980	15,126	224.11	1.482
1979	10,675	20.00	0.187
1978	9,401	118.90	1.265
1977	8,479	380.57	4.488
1976	8,015	29.51	0.368
1975	7,720	204.10	2.644
1974	11,101	122.82	1.106
1973	8,082	49.07	0.607
1972	7,106	193.25	2.719
1971	6,643	82.00	1.234
1970	6,996	796.71	11.388
	Average Default Rate-1970 to 1986:		2.216%
	Average Default Rate-1974 to 1986:		1.671%
	Average Default Rate-1978 to 1986:		1.451%
	Average Default Rate-1983 to 1986:		1.727%

Source: Morgan Stanley

The normal fixed-income portfolio, on the other hand, would be delineated by the following characteristics:

1. All the securities would normally have a stated income stream attached.

2. It usually is looked on as a defensive portfolio, but with the new market volatility of the past five years, defensive may be a misnomer. In fact, market statistics in the past 18 months imply a greater volatility in the government-bond market than in the high-yield market. The U.S. government market is the world's political play pen—to enforce or sway political desires and interest-rate levels.

3. The actions of the U.S. government and its agencies, as well as foreign governments and their respective agencies, can greatly affect the performance of the government-bond market.

4. The securities can now be selected from a wide variety of instruments, and new variations are being developed constantly. In fact, fixed-income has become a misnomer since many securities now have adjustable income streams. In addition, many are retired in principal based on movement in interest rates, such as in the case of asset-backed securities.

Although income still can be generated, all fixed-income portfolios must expect high market volatility and potential credit deterioration based on economic change.

The third, and most common, portfolio is a combination of equity and fixed-income instruments distributed within the portfolio and based on market expectations. The portfolio would be delineated based on the following characteristics:

1. It will have funds invested in both stocks and fixed-income prepositions on a percentage basis, reflecting market outlook.

2. Some income is generated from fixed-income investments.

3. Market gains are generated from equity investments.

4. Market changes affect the performance of both portfolio group areas.

5. Consequently, the portfolio has both offensive and defensive characteristics derived respectively from the equity and fixed-income areas.

This portfolio's performance may be below market value because of the action of these areas and the increased volatility of each market.

The fixed-income portion of a balanced, high-yield portfolio should be constructed of credits with a low probability of movement in either direction.

It is important to note that out of the 25,000 companies whose assets exceed $35 million, only 5 percent would receive an investment-grade rating if they were to request it. In addition, out of the approximately 1,400 companies currently rated, only 50 percent are investment-grade. Therefore, the universe of candidates for investment purposes in the high-yield area is quite large.

A portfolio manager could therefore change the risk level and become more defensive or offensive by changing the mix between the credits in the two sectors and the amount of funds committed to the growth or credit portion of the fund. In addition, the manager could emphasize only offense or only defense in order to mimic either the growth-stock portfolio or the fixed-income portfolio.

The major attribute of this balanced high-yield fund is the tremendous increase in cash flow that is generated. The added cash flow provides the investor with a great deal of flexibility and an acceptable level of safety. If in today's market the average yield on a balanced portfolio is 6 percent, with a distribution of 60 percent equity and 40 percent fixed-income and cash equivalents, and the yield on a balanced portfolio of high yield distributed on the same 60/40 basis is 11 percent, the differential of 500 basis points will mean a doubling of principal in about 13 years. This cash-flow power adds tremendous liquidity and safety to the entire portfolio.

In short, the investing public, especially pension funds and endowment funds, can achieve their investment goals by utilizing high-yield credits while receiving superior cash flows. Risk exposure is controllable, and higher returns can be attained. □

James L. Sullivan is president of Sullivan Money Management Inc. in Houston. He has been a money manager for nearly two decades. Mr. Sullivan received a Bachelor's degree in business administration and an MBA from the University of Texas.

Cases & Rulings

Continued from page 48

(2) qualified employee discount,
(3) working condition fringe, or
(4) de minimis fringe

* * *

(e) DE MINIMIS FRINGE DEFINED. — For purposes of this section —

(1) IN GENERAL — The term "de minimis fringe" means any property or service the value of which is (after taking into account the frequency with which similar fringes are provided by the employer to the employer's employees) so small as to make accounting for it unreasonable or administratively impracticable.

10. Code § 132(e). *See also* Temporary Reg. § 1.132-6T.

11. Section 3401(a) provides:

for purposes of this chapter, the term "wages" means all remuneration (other than fees paid to a public official) for services performed by an employee for his employer, including the cash value of all remuneration (including benefits) paid in any medium other than cash; except that such term shall not include [various exceptions not applicable to our situation].

12. Temporary Reg. Section 31.3401(a)-1T provides:

Q-1: Are fringe benefits included in the definition of "wages" under section 340(a)?

A-1: Yes, unless specifically excluded from the definition of "wages" pursuant to section 3401(a) (1) through (20). For example, a fringe benefit provided to or on behalf of "wages" if at the time such benefit is provided it is reasonable to believe that the employee will be able to exclude such benefit from income under section 117 or 132 [of the Code].

13. *Id.* at § 31.3501(a)-1T, Q&A 5,6.

14. *Id.* at Q&A 10.

15. *Id.* at Q&A 1.

16. IRS Circular E, Employer's Tax Guide.

17. In addition to federal income tax withholding, an employer also is obligated to withhold for state and local income taxes, social security, unemployment and other taxes. Although it is beyond the scope of this article to discuss these other withholding obligations, we note that the issues discussed herein with respect to federal tax withholding are applicable to these other taxes as well.

18. A potential complication with delaying withholding, however, is the possibility that an employee may terminate his or her employment after the fringe benefit was received, but before the employer withheld amounts for federal income (and other) taxes. In that event, it is possible that the employer may be liable for the tax payment on such amounts.

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PENSION WORLD

Investment Managers / Plan Sponsors / Employee Benefits August 1988

Japan's Increasing Yen For Global Investing Draws World Attention

1988 State Retirement System Investment Survey

Investment Managers
• Plan Sponsors •
Employee Benefits

A Publication Of
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PENSION WORLD

August 1988
Volume 24 Number 8

About The Cover: In the aftermath of Black Monday, foreigners have been keeping a more watchful eye on the Japanese market and the country's foreign investments.

Photograph by Jerry Hoy, Double Vision Inc., Atlanta.

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1988 State Retirement System Investment Survey

This survey outlines the investment practices of public-employee, teacher, police and other local-government funds.

The 1988 State Retirement System Investment Survey, compiled by the directory department of PENSION WORLD, provides information on the investment practices of public-employee retirement systems, teacher and school-employee retirement systems, police and firefighter retirement systems as well as local-government systems. However, the survey does not cover retirement systems of cities or individual municipalities.

This year's survey reports on 65 systems in 42 states. The magazine mailed questionnaires to 130 statewide systems in March, giving the survey a 50 percent rate of return. The respondents included 23 statewide public-employee retirement systems, 12 educational retirement systems, 12 "umbrella" systems and 18 other systems.

The assets of the retirement systems that responded to the survey ranged from $86.8 million for the Peace Officers' Annuity & Benefit Fund of Georgia to $44.5 billion for the California Public Employees Retirement System. Because some systems reported assets at cost while other systems used market figures, a sum of the total assets represented in the survey cannot be reported.

All but eight of the reporting systems (two each in Indiana and West Virginia and one each in Illinois, Indiana, South Carolina and Texas) invested in common or preferred stock. When this asset class was utilized by the funds, generally this was the largest investment. Other investments used by most funds were U.S. government securities and agencies, corporate bonds, mortgages, other real estate investments, short-term instruments and cash. Additionally, some retirement funds utilized guaranteed investment contracts, international investments (equity and fixed income), leveraged-buyout funds and venture-capital investments.

A large majority of the funds also utilized some internal management of the investments. Indeed, 16 funds reported that they are 100 percent internally managed. In other cases, internal management was limited to certain investments, including short-term cash management.

Of the reporting retirement funds that utilize discretionary-investment managers, the Pennsylvania State Employees' Retirement System tops the list with 42. Other systems that use a large number of outside managers are the Minnesota State Board of Retirement, the Pennsylvania Public School Employees Retirement System and the Virginia Supplemental Retirement System.

The following listings are based on the information provided by the individual funds to the directory department of PENSION WORLD. While the magazine has attempted to prepare this information as carefully as possible, PENSION WORLD assumes no responsibility for the accuracy of information presented in the listings.

The information contained in the 1988 State Retirement System Investment Survey was compiled by Barbara Katinsky, managing editor of the directory department, and Helen Frye, listings editor.

RETIREMENT SYSTEMS OF ALABAMA
135 South Union St.
Montgomery, AL 36130
Contact: Dr. David G. Bronner, Chief Executive Officer, (205) 832-4140

Information current as of 3/31/88; all figures at book value

Total assets: $6.6 billion
Common and preferred stock: $981.3 million
U.S. government securities and agencies: $175.1 million
Corporate bonds: $1.9 billion
Mortgages: $1.2 billion—privately held, government backed, $625 million
Cash and short-term securities: $772 million
Other investments: GIC $13.3 million
Privately placed $923.4 million
Percent of fund internally managed: 100%
Investment advisor: AmSouth Bank

ALASKA PUBLIC EMPLOYEES RETIREMENT FUND
Treasury Division, Department of Revenue
P.O. Box SB
Juneau, AK 99811
Contact: Kenneth L. Shaffer, Investment Officer, (907) 465-2350

Information current as of 02/29/88

Total assets: $1.9 billion
Common and preferred stock: $612.1 million
U.S. government securities and agencies: $799.1 million
Corporate bonds: $235.6 million
Mortgages: $121 million—privately held
Other real estate: $114 million
Cash and short-term securities: $6 million
Percent of fund internally managed: 66%
Discretionary investment managers: Domestic equities managed by Fred Alger, Lehman, Invesco - 29%; Foreign equities managed by Morgan Guaranty, Citibank - 4%

TEACHERS RETIREMENT FUND
Treasury Division, Department of Revenue
P.O. Box SB
Juneau AK 99811

Information current as of 2/29/88

Total Assets: $1.2 billion
Common and preferred stock: $398.7 million (domestic and foreign stocks combined)
U.S. government securities and agencies: $467.9 million
Corporate bonds $152.6 million
Mortgages: $102.2 million—privately held
Other real estate: $73.4 million
Cash and short-term securities: $1.4 million
Percent of fund internally managed: Fixed income, mortgages - 66% Discretionary investment managers: Domestic equities managed by Fred Alger, Lehman, Invesco - 29%; Foreign equities managed by Morgan Guaranty, Citibank - 4%

ARIZONA STATE RETIREMENT SYSTEM
P.O. Box 33910
3815 N. Black Canyon Highway
Phoenix, AZ 85015
Contact: Doug Lemon, Investment Director, (602) 255-5131

Information current as of 4/25/88; all figures at market value

Total assets: $6.2 billion
Common and preferred stock: $2.7 billion
Other investments: $2.9 billion—Fixed income, $468.1 million—Temporary investments; $45.2 million—Accrued income; $2.3 million—net receivables

ARKANSAS STATE HIGHWAY EMPLOYEES RETIREMENT SYSTEM
P.O. Box 2261
Little Rock, AR 72203
Contact: Larry Dickerson, Executive Secretary, (501) 569-2515

Information current as of 2/29/88

Total assets: $241 million
Common and preferred stock: $80 million
U.S. government securities and agencies: $72 million
Corporate bonds: $80 million
Cash and short-term securities $3 million
Discretionary investment manager: Retirement Board of Trustees
Investment advisors: Mike Murray, Loomis Sayles & Co., Inc.

ARKANSAS TEACHER RETIREMENT SYSTEM
Education Bldg. West
#3 Capitol Mall
Little Rock, AR 72201
Contact: Mrs. Mavolene C. Booth, Retirement Fund Investment Manager, (501) 682-1517

Information current as of 1/31/88

Total assets: $1.7 billion
Common and preferred stock: $705.8 million
U.S. government securities and agencies: $634.4 million
Corporate bonds: $103 million
Mortgages: $50.1 million—privately held, $42.4 million; government backed, $7.7 million
Cash and short-term securities: $156.4 million
Other investments: $567 thousand, Capital Notes
Percent of fund internally managed: 9.7% (short-term)
Discretionary investment manager: Oppenheimer Capital
Investment advisor: First Commercial Bank

CALIFORNIA PUBLIC EMPLOYEES RETIREMENT SYSTEM
400 P St., Room 3310
Sacramento, CA 95814
Contact: Greta Marshall, Investment Manager, (916) 326-3400

Information current as of 5/2/88; all figures at market value

Total assets: $44.5 billion
Common and preferred stock: $18.4 billion
U.S. government securities and agencies: $9.6 billion
Corporate bonds: $8.9 billion
Mortgages: $2.8 billion
Other real estate: $2.5 billion
Cash and short-term securities: $2.3 billion
Other investments: $0.6 billion
Percent of fund internally managed: 90%
Discretionary investment managers: Lazard Freres; Roll & Roff; RCM Capital; TFA Capital; Batterymarch; Dimensional Fund Advisors; First Chicago Investment Advisors; Atalanta Sosnoff; Citicorp
Investment advisors: Equitable Real Estate Investment Mgmt; Heitman; Trust Co. of West; LaSalle; F.I.A. Associates

COLORADO FIRE & POLICE PENSION ASSOCIATION
5290 DTC Pkwy.
Englewood, CO 80111
Contact: John Rogers, Executive Director, (303) 770-3772

Information current as of 3/31/88; all figures at market value

Total assets: $486.4 million
Common and preferred stock: $219.6 million
U.S. government securities and agencies: $146.5 million
Corporate bonds: $21.3 million
Other real estate: $47.6 million
Cash and short-term securities: $43.5 million
Other investments: Venture capital, $7.9 million
Percent of fund internally managed: 14%
Discretionary investment managers: Bollinger; Oppenheimer; Dremen; Prisa; RREEF; JMB; Mellon (real estate); Delaware Putnam
Investment advisor: Mercer-Meidinger

FLORIDA STATE BOARD OF ADMINISTRATION
P.O. Drawer 5318
Tallahassee, FL 32303
Contact: Cliff Hinkle, Executive Director, (904) 488-4406

Information current as of 2/29/88; all figures at market value

Total assets: $13.8 billion
Common and preferred stock: $5.5 billion
U.S. government securities and agencies: $5.5 billion
Mortgages: $1.5 billion
Other real estate: $640.0 million
Cash and short-term securities: $755.2 million
Percent of fund internally managed: 57%
Discretionary investment managers: Aetna Life & Casualty Insurance, Fred Alger Mgmt., Alliance Capital Mgmt., Ariel Capital Mgmt., Barnett Bank, Barrow, Hanley, Mewhinney & Strauss, Bear Stearns Asset Mgmt., Delaware Investment Advisors, Denver Investment Advisors, Eagle Asset Mgmt., Equitable Life Assurance Society, First Chicago Investment Advisors, Goldman Sachs, IDS Investment Advisors, John Hancock Mutual Life Insurance Co., Invesco Capital Mgmt., LaSalle Advisors, Lazard Freres Asset Mgmt., Prudential Asset Mgmt., Stein Roe and Farnham, Inc., Wells Fargo Bank, Wells Fargo Investment Advisors, Westwood

EMPLOYEES' RETIREMENT SYSTEMS OF GEORGIA
Two Northside 75, Suite 300
Atlanta, GA 30318
Contact: Graham R. Lynch, Director, Investment Services Division, (404) 656-2151

Information current as of 2/29/88

Total assets: $2.5 billion
Common and preferred stock: $916.3 million (all common)
U.S. government securities and agencies: $1.2 billion
Corporate bonds: $227.7 million
Mortgages: $7.5 million
Other real estate: $1.9 million
Cash and short-term securities: $149.6 million
Percent of fund internally managed: 100%
Investment advisors: First Wachovia, Invesco Capital Mgmt.; Thorndike, Doran, Paine & Lewis

TEACHERS RETIREMENT SYSTEM OF GEORGIA
Two Northside 75, Suite 400
Atlanta, GA 30318
Contact: Graham R. Lynch, Director, Investment Services Division, (404) 656-2151

Information current as of 2/29/88

Total assets: $6.3 billion
Common and preferred stock: $2.4 billion
U.S. government securities and agencies: $3 billion
Corporate Bonds: $482.0
Mortgages: $20.9 million
Other real estate: $2 million
Cash and short-term securities: $315.6 million
Percent of fund internally managed: 100%
Investment advisors: C&S Investment Advisors; Invesco Capital Mgmt.; Trusco Capital Mgmt.; Thorndike, Doran, Paine and Lewis; Wall, Patterson, Hamilton & Allen; Atlanta Capital Mgmt.

PEACE OFFICERS' ANNUITY & BENEFIT FUND OF GEORGIA
P.O. Box 56
Griffin, GA 30224
Contact: Flynt Langford, Sec./Treas., (404) 228-8461

Information current as of 2/29/88

Total assets: $86.8 million
Common and preferred stock: $25.1 million
U.S. government securities and agencies: $22.6 million
Corporate bonds: $22.9 million
Mortgages: $47.4 thousand — privately held
Cash and short-term securities: $16.2 million
Percent of fund internally managed: 100%
Investment advisors: Thorndike, Doran, Paine & Lewis, Inc.

GEORGIA FIREMEN'S PENSION FUND
720 Church St.
P.O. Box 1623
Decatur, GA 30030
Information current as of 5/31/88

Total assets: $99.8 million
Common stock: $44.9 million
U.S. government securities and agencies: $29 million
Corporate bonds: $9.7 million
Mortgages: $199.2 thousand
Other real estate: $125 thousand
Cash and short-term securities: $15.9 million
Percent of fund internally managed: 1%
Discretionary investment managers: First Wachovia Corp., 75%; Thorndike Doren Paine & Lewis, 25%

PUBLIC EMPLOYEE RETIREMENT SYSTEM OF IDAHO
Statehouse
700 W. State St.
Boise, ID 83720
Contact: Ronald V. Crouch, Asst. Director, Fiscal, (208) 334-3365

Information current as of 2/29/88

Total assets: $1.2 billion
Common and preferred stock: $669.1 million
U.S. government securities and agencies: $193.3 million
Corporate bonds: $100.2 million
Mortgages: $75.8 million—privately held, $7.3 million
Other real estate: $96.0 million
Cash and short-term securities: $98.4 million
Other investments: Income receivable, $9.3 million
Investment advisor: Frank Russell Trust Co.

ILLINOIS STATE BOARD OF INVESTMENT
180 North LaSalle Street, Suite 2015
Chicago, IL 60601
Contact: Robert J. Harmon, Director, (312) 793-5710

Information current as of 12/31/87; all figures at market value

Total assets: $2.5 billion
Common and preferred stock: $894 million
U.S. government securities and agencies: $308 million
Corporate bonds: $622 million
Other real estate: $239 million
Cash and short-term securities: $218 million
Other investments: $219 million
Percent of fund internally managed: 70%
Investment advisors: Ariel, Cooke & Bieler; Disciplined; Fidelity; Lazard Freres; Lincoln Capital; Newbolds; Trinity; Trust Company of the West; Calamos; J.P. Morgan Delaware

TEACHERS RETIREMENT SYSTEM OF THE STATE OF ILLINOIS
P.O. Box 19253
2815 W. Washington
Springfield, IL 62794-9253
Contact: Charles F. Hofer, Investment Officer, (217) 753-0370

Information current as of 3/31/88; all figures at market value

Total assets: $6.7 billion
Common and preferred stock: $3.1 billion (includes $423 million in international equities)
U.S. government securities and agencies: $1 billion
Corporate bonds: $1.4 billion
Mortgages: $208 million—government backed
Other real estate: $379.9 million
Cash and short-term securities: $548 million
Other investments: Venture capital, $23 million
Discretionary investment managers: Equity managers: Alliance Capital Mgmt. Corp.; American National Bank and Trust Co. of Chicago; Ariel Capital Mgmt., Inc.; Capital Supervisors, Inc.; Cedar Hill Associates, Inc.; Kemper Financial Services, Inc.; Kemper-Murray Johnstone International, Inc.; State Street Bank and Trust Co. (EAFE Ex-Japan); State Street Bank and Trust Co. (EAFE Index); Fixed income managers: Bear Stearns Asset Mgmt.; Dreyfus Mgmt., Inc.; Marine Investment Mgmt. Co.; Pacific Investment Mgmt. Co.; State Street Bank and Trust Co. (SLG/C Index); Real estate managers: Bennett & Kahnweiler Realty Advisors, Inc.; F.I.A. Associates; First Chicago Investment Advisors; JMB Institutional Realty; TCW Realty Advisors; Venture capital: Frontenac Venture Co.

ILLINOIS STATE UNIVERSITIES RETIREMENT SYSTEM
50 Gerty Dr.
Champaign, IL 61820
Contact: Kenneth E. Codlin, Investment Officer, (217) 333-3860

Information current as of 2/29/87; all figures at market value

Total assets: $2.9 billion
Discretionary investment managers: Aetna Realty; Batterymarch; Equitable; Fayez Sarofin; JMB Realty; Pacific Investment; RREEF; Wells Fargo
Investment advisor: Ennis, Knupp & Associates

INDIANA PUBLIC EMPLOYEES' RETIREMENT FUND
143 W. Market St., Suite 800
Indianapolis, IN 46204
Contact: L. H. Earle II, Executive Sec., (317) 232-1615

Information current as of 3/31/88; all figures at book value

Total assets: $2.9 billion
U.S. government securities and agencies: $1.3 billion
Corporate bonds: $1.1 billion
Mortgages: Government backed, $171.1 million
Cash and short-term securities: $322.2 million
Discretionary investment managers: Bank One Indianapolis; Indiana National Bank; Lehman Mgmt. Co.; Prime Capital Mgmt.; T. Rowe Price

INDIANA STATE TEACHERS' RETIREMENT FUND
506 State Office Building
Indianapolis, IN 46204
Contact: Robert D. Newland, Investment Officer, (317) 232-3868

Information current as of 2/29/88

Total assets: $1.5 billion
U.S. government securities and agencies: $540 million
Corporate bonds: $365 million
Mortgages: $423 million—government backed
Cash and short-term securities: $131 million
Discretionary investment managers: Alliance Capital Mgmt.; Bank One; Bank of New York; Baxter & Hoops; Indiana National Bank; Merchants Investment Counseling
Investment advisor: Todd Investment Advisors

IOWA PUBLIC EMPLOYEES RETIREMENT SYSTEM
600 E. Court
P.O. Box 9117
Des Moines, IA 50306
Contact: Larry Thompson, Investment Officer, (515) 281-5224

Information current as of 4/31/88; all figures at market value

Total assets: $3.9 billion
Common and preferred stock: $1.4 billion
Total fixed income: $2.0 billion
Real estate: $357.1 million
Cash and short-term securities: $232.1 million
Other investments: Venture capital, $12.4 million; LBO, $122.7 million
Percent of fund internally managed: 1%
Discretionary investment managers: Fixed income managers (long bonds) - J. P. Morgan Investment Mgmt., Inc.; Loomis, Sayles & Co. Fixed income managers (active bonds) - The Boston Co.; Criterion Investment Mgmt. Co. Fixed income managers (mortgage bonds) - Miller, Anderson & Sherrerd. Equity managers (active diversified) - Capital Guardian Trust Co.; Wellington Mgmt. Co. Equity Managers (active aggressive) - Rosenberg Capital Mgmt.; Equity managers (complementary) - Batterymarch Financial; Prudential Asset Mgmt. Co.;

Invista, Inc.; Mellon Capital Mgmt. Equity Real Estate Pools - Copley Real Estate Advisory; Heitman Advisory; JMB Institutional Realty Corp.; Aldrich, Eastman & Waltch. Venture Capital Funds - R. W. Allsop & Associates; Cable & Howse Ventures; Steinberg & Lyman; Lawrence Venture Associates; Interven Partners; Invest America; Inteven; Golder Thomacressey. LBO Funds - Kohlberg, Kravis, Roberts & Co.; TCW Special Placements Fund; Gibbons, Green, van Amerongen; WZAS.
Investment advisor: Wilshire Associates

KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
Capitol Tower - 2nd Floor
400 W. 8th
Topeka, KS 66603
Contact: Marshall Crowther, Executive Secretary, (913) 232-6665

Information current as of 4/30/88

Total assets: $3 billion
Common and preferred stock: $946.5 million
U.S. government securities and agencies: $531 million
Corporate bonds: $349.6 million
Mortgages: $54.9 million—privately held
Other real estate: $188.2 million
Cash and short-term securities: $742.7 million
Other investments: IRBs $9.7 million; International (equity), $181.7 million; International (fixed), $52.3 million
Discretionary investment managers: Domestic equity managers - Capital Supervisors; Investment & Capital Mgmt.; Market Research & Mgmt.; Pilgrim, Baxter & Greig; Provident Investment Counsel; Reimer & Koger. Domestic fixed income managers - Loomis, Sayles & Co.; Pacific Investment Mgmt.; Peters, Gamm & West. International equity - Alliance Capital Mgmt.; Nomura Capital Mgmt. International Fixed Income - Julius Baer Investment Mgmt., Inc. Real estate - J. W. O'Connor. STIF manager - Payden & Rygel; Domestic custodian - Commerce Bank & Trust. International custodian - Bankers Trust Co. Domestic security lending - Marine Midland Bank. International security lending - Bankers Trust Co. Investment consultant - Callan Associates, Inc.

KENTUCKY RETIREMENT SYSTEMS
1260 Louisville Rd.
Frankfort, KY 40601
Contact: Bobby J. McKee, General Manager, (502) 564-4646

Information current as of 3/21/88

Total assets: $2.3 billion
Common and preferred stock $765 million
U.S. government securities and agencies: $423 million
Corporate bonds: $289 million
Mortgages: $378 million—government backed
Other real estate: $77 million
Cash and short-term securities: $368 million
Percent of fund internally managed: 26%
Investment advisors: Capital Supervisor; Munder Capital Mgmt., Heitman Advisory

KENTUCKY TEACHERS' RETIREMENT SYSTEM
216 W. Main Street
Frankfort, KY 40601
Contact: Stuart A. Reagan, Deputy Executive Secretary, (502) 564-2057

Information current as of 2/29/88

Total assets: $2.7 billion
Common and preferred stock: $555.1 million
U.S. government securities and agencies: $1.0 billion
Corporate bonds: $460.1 million
Mortgages: $189 million—government backed
Other real estate: $34.5 million
Cash and short-term securities: $454.9 million
Percent of fund internally managed: 9%
Investment advisors: Todd Investment Advisors; Invesco Capital Mgmt.; First Kentucky Co.

MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM OF LOUISIANA
6750 Van Gogh Ave.
Baton Rouge, LA 70806
Contact: Doris J. Cook, Administrative Director, (504) 925-4810

Information current as of 2/29/38

Total assets: $89 million (par)
U.S. government securities and agencies: $153 million
Corporate bonds: $1 million
Mortgages: $4 thousand
Cash and short-term securities: $3 million
Other investments: $10.6 million
Investment advisor: Premier Investment Advisors

LOUISIANA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
P.O. Box 44516, Capitol Station
Baton Rouge, LA 70804
Contact: Dr. Larry D. Quisenberry, Secretary-Treasurer, (504) 925-6484

Information current as of 12/31/87

Total assets: $572.2 million
Common and preferred stock: $32.9 million
U.S. government securities and agencies: $227.7 million (par)
Corporate bonds: $252.4 million (par)
Cash and short-term securities: $59.2 million
Other investments: Accounts receivable $8 thousand, Fixed assets inventory $21 thousand
Percent of fund internally managed: 1%
Investment advisor: Hibernia National Bank

MAINE STATE RETIREMENT SYSTEM
State House Station #46
Augusta, ME 04333
Contact: Claude R. Perrier, Exec. Director, (207) 289-3461

Information current as of 2/29/88; all figures at market value

Total assets: $1.3 billion
Common and preferred stock: $561.3 million
U.S. government securities and agencies: $321.4 million
Corporate bonds: $169.5 million
Other real estate: $13.7 million
Cash and short-term securities: $239.7 million
Other investments: Oil & gas $2.9 million; Travelers - separate accounts - $18.5 million
Discretionary investment managers: Alliance Capital; FLA Asset Mgmt.; Maine National Bank; Massachusetts Financial Services; Putnam Advisory; Gouws Capital; Property Capital Advisors; Morgan Guaranty; Evans & Moxon; Dillon Read; First Reserve Energy
Investment advisor: Wilshire Associates

MARYLAND STATE RETIREMENT AND PENSION SYSTEM
301 W. Preston St.
Baltimore, MD 21201
Contact: Arthur M. Lynch, Jr., Director, Actively Managed Investments, State Investment Agency, (301) 225-1024

Information current as of 2/29/88; all figures at market value

Total assets: $8.5 billion
Common and preferred stock: $2.4 billion
U.S. government securities and agencies: $683 million
Dedicated bonds: $4.2 billion
Corporate bonds: $537.6 million
Mortgages: $257.6 million—government backed
Other real estate: Commingled funds, $129 million
Cash and short-term securities: $315 million
Percent of fund internally managed: 75%
Discretionary investment managers: Equity: Capital Guardian; Dimensional Fund Advisors; Hagler, Mastrovita & Hewitt; Investment Counselors of Maryland; Scudder, Stevens & Clark; Wellington Trust Co.; Fixed income—Investment Counselors of Maryland; Mercantile-Safe Deposit & Trust Co.; Pacific Investment Mgmt.; Standish, Ayer & Wood

STATE OF MICHIGAN RETIREMENT SYSTEM
425 W. Allegan St., Treasury Bldg.
Lansing, MI 48922
Contact: William A. Amerman, Director of Investments, (517) 373-3140

Information current as of 12/31/87

Total assets: $14 billion
Common and preferred stock: $6.3 billion
U.S. government securities and agencies: $2.1 billion
Corporate bonds: $2.3 billion
Mortgages: $1 billion—privately held, $0.2 billion; government-backed, $0.8 billion
Other real estate: $0.2 billion
Cash and short-term securities: $2.0 billion
Percent of fund internally managed: 100%

MINNESOTA STATE BOARD OF INVESTMENT
Room 105 MEA Bldg.
55 Sherburne Ave.
St. Paul, MN 55155
Contact: Howard J. Bicker, Exec. Dir., (612) 296-3328

Information current as of 12/31/87; all figures at market value

Total assets: $9.1 billion
Common and preferred stock: $3.3 billion
Fixed income: $4.6 billion
Other real estate: Investment in commingled funds: Commitments: $385 million, Funded: $$358.6 million
Cash and short-term securities: $625.2 million
Other investments: Venture capital and resource funds: Commitments $363 million, Funded $176 million
Percent of fund internally managed: 45.7%
Discretionary investment managers: Common stocks: Fred Alger Mgmt., Inc., Alliance Capital Mgmt. Corp., Beutel Goodman Capital Mgmt., Ltd., BMI Capital Corp., Forstmann Leff Associates, Hellman Jordan Mgmt. Co., IDS Advisory, Investment Advisers, Inc., Lieber and Co., Peregrine Capital Mgmt., Inc., Waddell & Reed, Wilshire Associates. Bonds: Investment Advisers, Inc., Lehman Mgmt. Co., Inc., Miller, Anderson and Sherrerd, Morgan Stanley Asset Mgmt.; Peregrine Capital, Western Asset Mgmt. Real estate: Aetna Life and Casualty, Equitable Real Estate Group, Prudential Investment Mgmt. Corp., RREEF,

Heitman Advisory Corp., Trust Co. of the West, State Street Bank and Trust. Venture capital: Allied Capital, DSV Mgmt., Ltd., First Century, First Chicago, Inman and Bowman Mgmt., Investment Advisors, Inc., Kohlberg, Kravis, Roberts and Co., Matrix Partners, Norwest Venture Capital Mgmt., Smith Barney Venture Corp., Summit ventures, Superior Venture. Resource funds: Amgo, Apache Corp.
Investment advisor: Richards & Tierney, Inc.

PUBLIC EMPLOYEES RETIREMENT SYSTEM OF MISSISSIPPI
429 Mississippi St.
Jackson, MS 39201-1005
Contact: Eddie B. Vandiver, Deputy Director/Investments, (601) 359-2255

Information current as of 3/31/88

Total assets: $3.1 billion (book)
Common and preferred stock: $730.5 million (book)
U.S. government securities and agencies: $1.7 billion (market)
Corporate bonds: $575.7 million (market)
Cash and short-term securities: $117.8 million (book)
Discretionary investment managers: Equity managers: Bankers Trust Co.; The Boston Company Institutional Investors; Fayez Sarofim & Co.; Invesco Capital Mgmt.; Sun Bank, N.A. Fixed income managers: Criterion Investment Mgmt. Co.; Dreyfus Mgmt., Inc.; Lehman Mgmt. Co.; Pacific Investment Mgmt. Co.; Wells Fargo Investment Advisors

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM
906 Leslie Blvd.
P.O. Box 209
Jefferson City, MO 65102
Contact: Steve Yoakum, Executive Director, (314) 751-2342

Information current as of 2/29/88

Total assets: $1.1 billion
Common and preferred stock: $576.6 million
U.S. government securities and agencies: $200.4 million
Corporate bonds: $117.7 million
Mortgages: $30.1 million—privately held, $25.3 million; government-backed, $4.9 million
Other real estate: $60.8 million
Cash and short-term securities: $112.7 million
Other investments: Venture capital, $12.4 million
Discretionary investment managers: Alliance Capital; CFW; Delaware Inv. Advisors; Investors Research; Sheilds Asset Mgmt.; Centerre Trust Co.; Loomis Sayles; Wentworth, Hanser & Violich; Eastdil; First Chicago; The Kirk Organization

MISSOURI LOCAL GOVERNMENT EMPLOYEES RETIREMENT SYSTEM
P.O. Box 1665
Jefferson City, MO 65102
Contact: Keith E. Hughes, (314) 751-3666

Information current as of 6/30/87

Total assets: $482.9 million
Common and preferred stock: $183.2 million
U.S. government securities and agencies: $156 million
Corporate bonds: $68 million
Other real estate: $516 thousand
Cash and short-term securities: $74.1 million
Investment advisors: Centerre Trust Co.; Delaware Investment Advisors; Hoisington Investment Mgmt.; Invesco Capital Mgmt.; Lehman Mgmt. Co.; Loomis, Sayles and Co.; United Missouri Investment Counsel Service

MONTANA PUBLIC EMPLOYEES' RETIREMENT DIVISION
Capitol Station
Helena, MT 59601
Contact: James R. Penner, Asst. Investment Officer, (406) 442-1970

Information current as of 6/30/87

Total assets: $602.7 million
Common and preferred stock: $59.0 million
U.S. government securities and agencies: $78.3 million
Corporate bonds: $349.1 million
Mortgages: $54.8 million—privately held
Cash and short-term securities: $61.5 million
Percent of fund internally managed: 100%

MONTANA STATE BOARD OF INVESTMENT
(Manages Combined Public Employees Funds)
555 Fuller
Helena, MT 59601
Contact: James R. Penner, Asst. Investment Officer, (406) 442-1970

Information current as of 6/30/87

Total assets: $1.2 billion
Common and preferred stock: $75.9 million
U.S. government securities and agencies: $142.7 million
Corporate bonds: $762.7 million
Mortgages: $109.2 million—privately held
Other real estate: $121 million
Cash and short-term securities: $97.4 million
Percent of fund internally managed: 100%

MONTANA TEACHERS' RETIREMENT SYSTEM
Capitol Station
Helena, MT 59620
Contact: James R. Penner, Asst. Investment Officer, (406) 442-1970

Information current as of 6/30/87

Total assets: $484.2 million
Common and preferred stock: $51.0 million
U.S. government securities and agencies: $64.4 million
Corporate bonds: $276.6 million
Mortgages: $55.9 million—privately held
Cash and short-term securities: $36.3 million
Percent of fund internally managed: 100%

STATE OF NEBRASKA INVESTMENT COUNCIL
107 Terminal Building
941 "O" Street
Lincoln, NE 68508
Contact: Donald J. Mathes, State Investment Officer, (402) 471-2043

Information current as of 2/29/88

Total assets: $860 million
Common and preferred stock: $266 million
U.S. government securities and agencies: $182.7 million
Corporate bonds: $110 million
Mortgages: $77 million—government backed
Cash and short-term securities: $123 million
Percent of fund internally managed: 72%
Discretionary investment managers: Alliance Capital Mgmt., Commerce Investment Mgmt., Investment Advisers, Invista, Travelers Keystone, KPSP, Provident Investment Counsel Trinity Investment Mgmt.
Investment advisor: Wilshire Associates

NEBRASKA RETIREMENT SYSTEMS
941 O Street, Room 107
Lincoln, NE 68508
Contact: Donald J. Mathes, State Investment Officer, (402) 471-2043

Information current as of 3/31/88

Total assets: $734 million
Common and preferred stock: $375 million
U.S. government securities and agencies: $35 million
Corporate bonds: $63 million
Mortgages: $160 million — Government backed
Cash and short-term securities: $8 million
Other investments: $93 million
Percent of fund internally managed: 65%
Investment advisor: Wilshire Associates

PUBLIC EMPLOYEES RETIREMENT SYSTEM OF NEVADA
693 W. Nye Lane
Carson City, NV 89703
Contact: Laura Wallace, Investment Officer, (702) 885-4200

Information current as of 2/29/88

Total assets: $2.5 billion
Common and preferred stock: $849 million
U.S. government securities and agencies: $697 million
Corporate bonds: $115.7 million
Mortgages: $434.4 million—privately held, $127.5 million; government backed, $306.8 million
Other real estate: $155.7 million
Cash and short-term securities: $233.7 million
Other investments: Venture capital, $5.4 million; international ADR's $48.9 million
Discretionary investment managers: Criterion; Invesco; Loomis-Sayles; Alliance; Wells Fargo; DFA; Axe Core; Columbine; Bay Partners; Golder; Thomas Cressey; Balch-Hardy; Bankers; Putnam; State Street; Patterson; Karsten; Heitman; Prudential; TCW; JP Morgan; JMB; PM Realty
Investment advisors: Mercer-Meidinger-Hansen; Pension Realty Advisors; Wilshire Associates

STATE OF NEW JERSEY, DIVISION OF INVESTMENT
CN 290
349 W. State St.
Trenton, NJ 08540
Contact: Roland Machold, Director, (609) 292-5106

Information current as of 6/30/88

Total assets: $24.4 billion
Common and preferred stock: $10.2 billion
U.S. government securities and agencies: $9.5 billion
Corporate bonds: $2.0 billion
Mortgages: $2.2 billion
Cash and short-term securities: $0.5 billion
Percent of fund internally managed: 100%

NEW MEXICO PUBLIC EMPLOYEES' RETIREMENT ASSOCIATION
P.O. Box 2123
Santa Fe, NM 87504-2123
Contact: Judith K. Alderson, Director, (505) 827-4700

Information current as of 12/31/87

Total assets: $1.4 billion
Common and preferred stock: $267.3 million
U.S. government securities and agencies: $471.2 million
Corporate bonds: $292.7 million
Other real estate: $15 million
Cash and short-term securities: $256.9 million
Percent of fund internally managed: 3%
Discretionary investment managers: Fiduciary Trust International; Wentworth; Hauser & Violich; Loomis, Sayles & Co.; Criterion Investment Mgmt.; Invesco Mgmt. Co.
Investment advisor: Wilshire Associates

NEW MEXICO EDUCATIONAL RETIREMENT BOARD
P.O. Box 1029
Santa Fe, NM 87504-1029
Contact: John E. Young, Investment Officer, (505) 827-8030

Information current as of 2/29/88

Total assets: $1.5 billion
Common and preferred stock: $50 million
U.S. government securities and agencies: $820 million
Corporate bonds: $375 million
Mortgages: $200 million—government backed
Cash and short-term securities: $55 million
Percent of fund internally managed: 100%
Investment advisor: Vaughan, Nelson, Scarborough & McConnell, Inc.

NEW YORK STATE & LOCAL RETIREMENT SYSTEMS
Alfred E. Smith State Office Building
Albany, NY 12236
Contact: John Hull, Deputy Comptroller (518) 474-4003

Information current as of 2/29/88; all figures at book value

Total assets: $35.6 billion
Common and preferred stock: $16.9 billion (market)
U.S. government securities and agencies: $11 billion
Corporate bonds: $4 billion
Mortgages: $2.7 billion—privately held, $2.5 billion; government backed, $204 million
Other real estate: $206 million
Cash and short-term securities: $1.2 billion
Other investments: $329 million
Percent of fund internally managed: 90%
Investment advisors: Wilshire Associates; Pension Realty Advisors

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM
10 Corporate Woods Drive
Albany, NY 12211
Contact: Edward J. Reno, Securities Investment Officer, (518) 447-2750

Information current as of 12/31/87; all figures at book value

Total assets: $19.7 billion
Common and preferred stock: $8.5 billion
U.S. government securities and agencies: $3.6 billion
Corporate bonds: $4.1 billion
Mortgages: $1.6 billion—privately held, $573.7 million; government backed, $1 million
Other real estate: $320 million
Cash and short-term securities: $500 million
Other investments: $124 million
Percent of fund internally managed: 84.6% Discretionary investment managers: Bernstein; Lehman; Oppenheimer; Beutel Goodman; Glickenhaus; General American
Investment advisor: Buck Pension Fund Services

NORTH CAROLINA RETIREMENT SYSTEMS
325 N. Salisbury St.
Raleigh, NC 27611
Contact: C. Douglas Chappell, Director, (919) 733-7282

Information current as of 12/31/87

Total assets: $12.5 billion
Common and preferred stock: $3.1 billion
U.S. government securities and agencies: $2.4 billion
Corporate bonds: $5.3 billion
Mortgages: $1.4 billion—government backed GNMA
Other real estate: $175 million
Cash and short-term securities: $31 million
Percent of fund internally mananged: 74%
Discretionary investment managers: Real estate: NCNB National Bank; Wachovia Bank & Trust Co.; Aetna Life Insurance Co.; Goldman Sachs; Cigna Capital; Security Capital. Equity: Alliance Capital Mgmt.
Investment advisors—Equity: NCNB National Bank; Thorndike, Doran, Paine & Lewis; First Citizens Bank; Wachovia Bank & Trust Co.; First Union National Bank

NORTH DAKOTA PUBLIC EMPLOYEES RETIREMENT SYSTEM
P.O. Box 1214
Bismarck, ND 58501
Contact: Leroy Gilbertson, Financial Director, (701) 224-2173

Information current as of 4/25/88

Total assets: $290 million
Common and preferred stock: $130 million
Fixed income: $125 million
Other investments: $23 million, International equities - $12 million real estate
Discretionary investment managers: Equity managers: Sanford C. Bernstein & Co.; Investment Advisers Inc.; John McStay Investment Counsel; State Street Bank; Wilshire Associates. Fixed income managers: Bank of North Dakota; Criterion Investment Mgmt. Co.; Lehman Mgmt. Co. Inc.; Western Asset Mgmt. Co. Real Estate Managers: JMB Institutional Realty Corp.; J.P. Morgan Investment Mgmt., Inc.; Trust Company of the West
Investment advisor: Callan Associates

NORTH DAKOTA TEACHERS' FUND FOR RETIREMENT
P.O. Box 7100
Bismarck, ND 58502
Contact: John Thrasher, Investment Director, (701) 224-4885

Information current as of 12/31/87

Total assets: $309.5 million
Common and preferred stock: $85.8 million
U.S. government securities and agencies: $153.3 million
Corporate bonds: $33.0 million
Mortgages: $891.5 thousand
Other real estate: $8 million
Cash and short-term securities: $28.5 million
Investment advisor: Callan Associates

OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM
277 E. Town St.
Columbus, OH 43215
Contact: Robert A. McLaughlin, Investment Officer, (614) 480-7370

Information current as of 2/29/88

Total assets: $16 billion
Common and preferred stock: $4 billion
Corporate bonds: $1 billion
Mortgages: $6.4 billion—privately held, $60 million; government backed, $3 billion
Other real estate: $342 million
Cash and short-term securities: $546 million
Other investments: Venture capital $30 million
Percent of fund internally managed: 97%
Investment advisors: Real estate - Security Capital; Bristol Group; Cigna; Wells Fargo; NCNB; Rothschild

THE STATE TEACHERS RETIREMENT SYSTEM OF OHIO
275 East Broad Street
Columbus, OH 43215
Contact: Daniel M. Szente, Asst. Director, Investments, (614) 227-4062

Information current as of 12/31/87

Total assets: $13.4 billion
Common and preferred stock: $4 billion
U.S. government securities and agencies: $5 billion
Corporate bonds: $609.8 million
Mortgages: $1 billion—government backed
Other real estate: $1.6 billion
Cash and short-term securities: $700.7 million
Other investments: Venture capital: $17.5; Canadian/miscellaneous bonds: $426.6 million
Percent of fund internally managed: 100%

OHIO SCHOOL EMPLOYEES' RETIREMENT SYSTEM
45 North Fourth St.
Columbus, OH 43215
Contact: Paul M. Kubinsky, Director of Investments, (614) 221-7012

Information current as of 2/29/88; all figures at book value

Total assets: $2.1 billion
Common and preferred stock: $662.2 million
U.S. government securities and agencies: $200.3 million
Corporate bonds: $267.5 million
Mortgages: $432.8 million
Other real estate: $291.6 million
Cash and short-term securities: $227.3 million
Other investments: Venture capital, $18.9 million
Percent of fund internally managed: 70%
Discretionary investment managers: Real estate commingled funds: NCNB; Equitable Real Estate Investment Mgmt.; Prudential Asset Mgmt. Group
Investment advisor: Mellon Capital Mgmt. Corp.

OHIO HIGHWAY PATROL RETIREMENT SYSTEM
4795 Evanswood Dr.
Columbus, OH 43229
Contact: R. Dean Huffman, Executive Director, (614) 466-2268

Information current as of 12/31/87

Total assets: $146.8 million
Common and preferred stock: $48.3 million
U.S. government securities and agencies: $67.9 million

Corporate bonds: $28.6 million
Cash and short-term securities: $2.0 million
Percent of fund internally managed: 100%
Investment advisor: Duff & Phelps

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO
230 East Town Street
Columbus, OH 43215
Contact: Theodore G. Hall, Investment Manager (614) 228-4076

Information current as of 3/31/88; all figures at book value

Total assets: $2.4 billion
Common and preferred stock: $675.5 million
U.S. government securities and agencies: $353 million
Corporate bonds and private placements: $658.3 million
Mortgages: $233.5 million—government backed
Other real estate: $120 million
Cash and short-term securities: $361.4 million
Other investments: Venture capital, $11.4 million
Percent of fund internally managed: 67%
Discretionary investment managers: Equity-Valueline, Timco, Bankers Trust, Axe Core, Society Bank and Duff & Phelps
Investment advisors: Real estate-Schroder Real Estate Associates, Meyer Investment Properties, Inc.

OREGON PUBLIC EMPLOYEES' RETIREMENT SYSTEM
158 State Capitol
Portland, OR 97207-0073
Contact: James C. George, Investment Manager, (503) 378-4111

Information current as of 12/31/87

Total assets: $7.8 billion
Common and preferred stock: $4.3 billion—domestic, $3.6 billion; international, $694 million
U.S. government securities and agencies: $792 million
Corporate bonds: $1.4 billion
Mortgages: $425 million
Other real estate: $226 million
Other investments: LBO-$345 million; Venture capital-$71 million
Percent of fund internally managed: 36% (bonds & mortgages)
Discretionary investment managers: International—Cursitor-Eaton Asset Mgmt.; Daiwa International Mgmt. Capital; Globe-Finlay; Matushka, Moser Partners; Nomura Capital Mgmt., Inc.; Rowe, Price-Fleming International, Inc.; Wertheim-Phillipe. Common stock fund—Atalanta/Sosnoff Capital Corp.; Batterymarch Financial; BEA Associates, Inc.; Columbia Mgmt. Co.; Cutler & Co., Inc.; Fayez Sarofim & Co.; Franklin Asset Mgmt.; Froley, Revy Investment Co., Inc.; General American Investors, Inc.; Harris Associates; Hotchkis & Wiley; Olympic Capital Mgmt.; Pinnacle Associates Ltd.; Quest Advisory Corp.; Rosenberg Capital Mgmt.; George B. Springman; Thompson/Rubinstein Investment Mgmt.; William D. Witter; Franklin Asset Mgmt.
Investment advisors: CBO—Kohlberg Kraus & Roberts; Real estate—Alex. Brown Realty Advisors; Frank Russell Co.; Wilshire Associates

PENNSYLVANIA STATE EMPLOYEES' RETIREMENT SYSTEM
909 Green St.
Harrisburg, PA 17102
Contact: David D. Burnett, Investment Analyst, (717) 787-9008

Information current as of 2/29/88

Total assets: $7.7 billion
Common and preferred stock: $3.4 billion
U.S. government securities and agencies: $1.7 billion
Corporate bonds: $759.9 million
Mortgages: $753.2 million—privately held, $496.7; government backed, $256.5
Other real estate: $427.6 million
Cash and short-term securities: $636.4 million
Other investments: Venture capital, $61.3 million
Discretionary investment managers: Equity—Barrow, Hanley, Mewhinney & Strauss, Inc.; First Pennsylvania Bank; Geewax, Terker & Co.; Glickenhaus and Co.; McGlinn Capital Mgmt.; Mellon Bank; Miller, Anderson & Sherrerd; Pilgrim, Baxter, Greig & Associates; Provident Investment Counsel; Sun Bank; Trinity Investment Mgmt. Corp.; Wells Fargo Investment Advisors. Fixed income—CIGNA; Delaware Investment Advisers; W. R. Huff Asset Mgmt.; Mellon Bank; Miller, Anderson & Sherrerd; Payden & Rygel; Fidelity Bank; Latimer & Buck Financial Services, Inc.; Pennsylvania State Treasury Dept. Real estate—Aetna Life Insurance Co.; Corporate Property Investors; F.I.A. Associates, Inc.; John Hancock Mutual Life Insurance Co.; Heitman Advisory Corp.; JMB Institutional Realty Advisors; The Prudential Asset Mgmt. Co.; PSI Institutional Realty; Security Capital Real Estate Corp. Venture capital—APA/Fostin Pennsylvania Venture Capital Fund; Butcher & Singer/Keystone Venture II, L.P.; CEO Venture Fund-S; Fostin Capital Associates; Genesis Seed Fund, Ltd.; Maverick Pennsylvania Fund; NEPA Venture Fund, L.P.; Pennsylvania Fund #1; Pittsburgh Seed Fund; PNC Venture Group I; TDH II Limited; Zero Stage Capital II - Central Pennsylvania Limited Partnership

PENNSYLVANIA MUNICIPAL RETIREMENT SYSTEM
P.O. Box 1165
Harrisburg, PA 17108
Contact: Donald Halke, Investment Accountant, (717) 787-2065

Information current as of 4/1/88

Total assets: $212.3 million
Common and preferred stock: $81.5 million
U.S. government securities and agencies: $22.4 million
Corporate bonds: $4.9 million
Mortgages: $12.3 million—privately held, $3.6; government-backed, $8.7
Other real estate: $32 million
Cash and short-term securities: $14 million
Investment advisors: Newbold; Fidelity; Merrill Lynch; CIGNA; JMB; PRISA; Marine

PENNSYLVANIA PUBLIC SCHOOL EMPLOYEES RETIREMENT SYSTEM
Box 125
Harrisburg, PA 17108
Contact: Clay Mansfield, Chief Investment Officer, (717) 787-9060

Information current as of 12/31/87; all figures at market value

Total assets: $11.3 billion
Common and preferred stock: $3.9 billionU.S. government securities and agencies: $3.3 billion
Corporate bonds: $784 million
Mortgages: $997 million—government backed
Other real estate: $729 million
Cash and short-term securities: $1.6 billion
Other investments: $42 million — Venture capital
Percent of fund internally managed: 2%
Discretionary investment managers: Investment advisors—Bankers Trust Co.; CEO Venture Fund; Cashman, Farrell & Associates; Commonwealth of Pennsylvania; Commonwealth Ventures Partners; Criterion Investment Mgmt. Co.; Delaware Investment Advisors; Dreman Value Mgmt.; Fidelity Bank; First Pennsylvania Bank; Genesis Seed Fund; Glenmede Trust Co.; Jones Lang Wootton Realty Advisors; Loomis, Sayles & Co.; Mellon Bank, N.A.; Mellon Capital Mgmt.; Miller Anderson & Sherrerd; NEPA Mgmt. Corp.; Oppenheimer Capital Corp.; Oppenheimer Option Mgmt.; Pacific Investment Mgmt. Co.; Pennsylvania Investment Private Placement; Pennsylvania Venture Capital Fund; Pittsburgh National Bank; Provident Capital Mgmt., Inc.; Putnam Advisory Co., Inc.; Trivest Venture Fund; Webster Capital Mgmt. Corp. Small managers equity fund—Addison Capital Mgmt.; Advisor Investment Managers, Inc.; Ariston Capital Mgmt. Corp.; Birmingham Capital Mgmt. Co., Inc.; Brandywine Asset Mgmt.; Crabbe-Huson Co.; Crawford Investment Counsel, Inc.; Cutler & Co., Inc.; Eagle Asset Mgmt., Inc.; Evans & Moxon Capital Mgmt., Inc.; Greenleaf Capital Mgmt.; Gulf Investment Mgmt., Inc.; Newbold's Asset Mgmt.; Scheetz, Smith & Co., Inc.; Trust Co. of the West; Edward A. Viner & Co., Inc./Hudson Capital Advisors; Westport Asset Mgmt., Inc.

EMPLOYEES RETIREMENT SYSTEM OF RHODE ISLAND
198 Dyer St.
Providence, RI 02903
Contact: Jerome F. Williams, Deputy General Treasurer for Finance, (401) 277-2287

Information current as of 2/29/88

Total assets: $1.5 billion
Common and preferred stock: $470.8 million
U.S. government securities and agencies: $516.5 million
Corporate bonds: $135.8 million
Cash and short-term securities: $384.6 million
Other investments: $2.3 million — Venture fund
Investment advisor: Fleet National Bank

SOUTH CAROLINA RETIREMENT SYSTEM
P.O. Box 11778
Columbia, SC 29211
Contact: Mrs. Shakun Tahiliani, Investment Coordinator, (803) 734-2101

Information current as of 3/31/88

Total assets: $4.8 billion
U.S. government securities and agencies: $2.1 billion
Corporate bonds: $1.2 billion
Mortgages: $953 million—privately held, $295 million; government backed, $658 million
Cash and short-term securities: $529 million
Other investments: $1 million, municipals
Percent of fund internally managed: 100%
Investment advisor: Jamison Eaton & Wood Co.

SOUTH DAKOTA RETIREMENT SYSTEM
216 East Capital
Pierre, SD 57501
Contact: Steve Meyers, State Investment Officer, (605) 335-5023

Information current as of 6/30/87; all figures at market value

Total assets: $1 billion
Common and preferred stock: $469 million
U.S. government securities and agencies: $179 million
Corporate bonds $102.8 million
Mortgages: $179 million—government backed
Other real estate: $27.7 million
Cash and short-term securities: $98.8 million
Other investments: $14.6 million — Limited partnership
Percent of fund internally managed: 87%
Discretionary investment managers: Bear Stearns, Trinity Mgmt., Dremen Value Mgmt., Frank Russell, Wachovia Real Estate, Security Capital Real Estate, Smith Vasiliou
Investment advisor: Investment Council

TENNESSEE CONSOLIDATED RETIREMENT SYSTEM
13th Floor, Andrew Jackson State Office Bldg.
Nashville, TN 37219
Contact: Charles H. Webb, III, Investment Div., (615) 741-2643

Information current as of 3/31/88; all figures at market value

Total assets: $6.3 billion
Common and preferred stock: $1.9 billion
U.S. government securities and agencies: $1.1 billion
Corporate bonds: $1.4 billion
Mortgages: $468.7 million—privately held, $50.8; million
Cash and short-term securities: $794.2 million
Other investments: Foreign stocks, $309.0 million; Foreign bonds, $327.8 million
Percent of fund internally managed: 100%

EMPLOYEES RETIREMENT SYSTEM OF TEXAS
P.O. Box 13207
Austin, TX 78711
Contact: Nancy G. Goerdel, Deputy Director of Investments, (512) 476-6431

Information current as of 2/29/88

Total assets: $4.5 billion
Common and preferred stock: $878.5 million
U.S. government securities and agencies: $2.2 billion
Corporate bonds: $795.2 million
Mortgages: $479 million—government backed, $549.0 million (pass-throughs)
Cash and short-term securities: $109.2 million
Percent of fund internally managed: 100%
Investment advisors: Invesco Capital Mgmt., (equity); Duff & Phelps Investment Mgmt., Inc. (fixed income)

TEXAS COUNTY & DISTRICT RETIREMENT SYSTEM
400 West 14th St.
Austin, TX 78701
Contact: J. Robert Brown, Director (512) 476-6651

Information current as of 12/31/87

Total assets $1.6 billion
U.S. government securities and agencies: $791 million
Corporate bonds: $223.8 million
Mortgages: $541 million
Cash and short-term securities: $15 million
Percent of fund internally managed: 100%

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TEACHER RETIREMENT SYSTEM OF TEXAS
1001 Trinity St.
Austin, TX 78701
Contact: Joe W. Perrone, Chief Inv. Officer, (512) 397-6460

Information current as of 2/29/88

Total assets: $16.2 billion (book)
Common and preferred stock: $4.7 billion (book)
U.S. government securities and agencies: $3.8 billion
Corporate bonds: $2.5 billion
Mortgages: $3.2 billion—privately held, $308 million; government backed, $2.8 billion
Other real estate: $1.5 billion
Cash and short-term securities: $585 million
Other investments: $29 million
Percent of fund internally managed: 100%
Investment advisor: Thorndike, Paine, Lewis & Doran

UTAH STATE RETIREMENT SYSTEMS
540 East, 200 South
Salt Lake City, UT 84102
Contact: W. Dan Smith, Investment Officer, (801) 355-3884

Information current as of: 12/31/87

Total assets: $2.9 billion
Common and preferred stock: $1.3 billion
U.S. government securities and agencies: $890 million
Corporate bonds: $148 million
Mortgages: $107 million—privately held, $50 million, government backed, $57 million
Other real estate: $245 million
Cash and short-term securities: $200 million
Percent of fund internally managed; 65%
Investment advisors: Atalanta/Sosonoff, Smoot Miller Cheney, Valueline, Wasatch Advisors, FIA Associates, State Street Bank

VIRGINIA SUPPLEMENTAL RETIREMENT SYSTEM
P.O. Box 6-C
Richmond, VA 23214
Contact: Timothy R. Barron, Director of Investments, (804) 344-3157

Information current as of 4/1/88; all figures at market value

Total assets: $7.5 billion
Common and preferred stock: $4.1 billion
U.S. government securities and agencies: $838 million
Corporate bonds: $1.4 billion
Mortgages: $198.1 million
Other real estate: $296.7 million
Cash and short-term securities: $612.7 million
Other investments: $8.4 million, investment in state office buildings
Percent of fund internally managed: 17.4%
Discretionary investment managers: Ardsley Partners; Bankers Trust Co., Sanford C. Bernstein & Co., DCM Advisers, Hutson Mgmt. Co., Lehman Mgmt. Co., MacKay-Shields Financial Corp., Merganser Capital Mgmt., Miller, Anderson & Sherrerd, Rosenberg Institutional Equity Mgmt., Security Capital Mgmt., Concord Capital Mgmt., Corinthian Capital Co., Delaware Investment Advisors, Fidelity Mgmt. Trust Co., GAMCO Investors, Inc.; IDS Advisory Group; Jundt/Capen Associates; Lincoln Capital Mgmt.; Loomis, Sayles & Co., Inc.; McKenzie, Walker Investment Mgmt.; Mellon Capital Mgmt. Corp.; Nicholas-Applegate Capital Mgmt.; Pacific Financial Research; Schafer Capital Mgmt. Co.; Donald Smith & Co., Inc., Massachusetts Financial Services Co., Sovran Capital Mgmt. Corp.; Equitable Life Assurance Society of the U.S.; LaSalle Advisors; J.P. Morgan Investment Mgmt.; New England Mutual Life; Phoenix Mutual Life; Prudential Insurance Corp. of America; The RREEF Corp.

WEST VIRGINIA PUBLIC EMPLOYEES RETIREMENT SYSTEM
Bldg. 5, Room 1052, Capital Complex
Charleston, WV 25305
Contact: Diana Will, Investment Div., State Treasurer's Office, Room E-120, State Capitol Bldg., Charleston, WV 25305, (304) 346-9100

Information current as of 3/31/88

Total assets: $1 billion
U.S. government securities and agencies: $575.8 million
Corporate bonds: $166.7 million
Mortgages: $118.7 million—privately held, $28.2 million; government backed, $90.4 million
Cash and short-term securities: $162.2 million
Percent of fund internally managed: 18.5%
Investment advisor: Investment Advisers, Inc.

WEST VIRGINIA TEACHERS' RETIREMENT SYSTEM
Bldg. 5, Room 1014
1900 Washington St. E
Charleston, WV 25305
Contact: Diana Will, Asst. Dir. of Investments, State Treasurer's Office, Room E-120, State Capitol Bldg., Charleston, WV 25305, (304) 346-9100

Information current as of 3/31/88

Total assets: $239.3 million
U.S. government securities and agencies: $192.2 million
Corporate bonds: $14.8 million
Mortgages: $26.5 million—government backed
Cash and short-term securities: $5.8 million
Percent of fund internally managed: 5%
Investment advisor: Duff & Phelps

STATE OF WISCONSIN INVESTMENT BOARD
121 E. Wilson St.
P.O. Box 7842
Madison, WI 53707
Contact: Marshall Burkes, Executive Director, (608) 266-2381

Information current as of 12/31/87

Total assets: $14.4 billion
Common and preferred stock: $6.3 billion
U.S. government securities and agencies, corporate bonds & private placements: $6.1 billion
Mortgages: $130 million
Other real estate: $271 million
Cash and short-term securities: $1.6 billion
Percent of fund internally managed: 100%

WYOMING RETIREMENT SYSTEM
1st Floor, Herschler Bldg.
Cheyenne, WY 82001
Contact: Terry Hanley, Director, (307) 777-7691

Information current as of 12/31/87

Total assets: $1.1 billion
Common and preferred stock: $265.8 million
U.S. government securities and agencies: $315.8 million
Mortgages: $454.3 million—government backed
Cash and short-term securities: $30.5 million
Other investments: $20.8 million (guaranteed portion of SBA)
Discretionary investment managers: Alliance Capital Mgmt. Corp.; Trinity Investment Mgmt. Corp.; Bear Stearns Asset Mgmt.; Lehman Mgmt. Co., Dreman Investments; Norwest Bank

State Employee-Benefit Costs Rising

BY JOHN P. MACKIN
Senior Vice President
Martin E. Segal Co., New York

Between January 1987 and January 1988, the increase in the average cost of state employee health-benefit plans was more than double the rise in national medical-care costs as measured by the Consumer Price Index (CPI). About one-fifth of the state plans reported cost increases of more than 20 percent. And in three states, costs jumped by more than 35 percent.

These were among the principal findings of Martin E. Segal Co.'s 1988 survey of state employee health-benefit plans for the 12-month period ending in January 1988. The results contrast sharply with the findings of the firm's 1987 and 1986 annual surveys. Although averages conceal a wide diversity in state employee health-plan benefits and costs, in each of the two previous years the average total cost for the 50 state plans increased by substantially less than the medical component of the CPI.

In early 1988, the Martin E. Segal Co. surveyed the 50 state plans to obtain current information on plan participants and monthly contributions. The 1988 update tables show plan participants and health-maintenance organization (HMO) participation as of January 1988 (Table 1), and contributions to each of the 50 state plans for January 1988 and January 1987 (Tables 2, 3 and 4). In addition, these show the percentage of the total cost paid by each state in 1988 and 1987 for employee-only coverage, employee and family coverage, and retiree-only coverage, respectively.

The tables present contribution data for basic plans and do not include the numerous HMOs offered to state employees. For states with multiple benefit plans, the tables generally show contributions for only the "low" and "high" basic plans. Figures regarding average costs for the state plans and the distribution of plans by the percentage of the total cost paid by the state are based on the low basic plan, where applicable.

Plan participants

As of January 1988, the 50 state health-benefit plans covered more than four million active employees and retirees. The figures shown in Table 1 total almost 3.9 million people—3,104,500 covered employees and 778,700 covered retirees. However, for California and New York, the figures shown are for state employees and retirees only, and exclude the thousands of local government employees covered by these two state-administered plans.

HMO participation varies widely among the 50 states. The number of HMOs offered ranges from zero in six states to 10 or more in 15 states. States that offer 25 or more HMOs include California, Florida, New York, Ohio, Pennsylvania and Wisconsin.

Approximately 974,000 people, or more than 30 percent of the 3.1 million employees covered by the 50 state plans, are enrolled in HMOs. The percentage of employees enrolled in HMOs varies from less than 10 percent in 14 states to more than 50 percent in seven states: Wisconsin (77 percent), Arizona (72 percent), California (70 percent), Ohio (62 percent), Illinois (61 percent), Colorado (60 percent) and Massachusetts (53 percent).

The distribution of state plans by the percentage of employees enrolled in HMOs also varies greatly. About 91,000 of the 780,000 retirees covered by state plans are enrolled in HMOs. As expected, the percentage of retirees enrolled in HMOs is much smaller than the percentage of active employees—12 percent vs. 31 percent. In 40 states, the retirees enrolled in HMOs represent less than 6 percent of the total number of covered retirees. HMO participation by retirees is concentrated in a few states, with more than half of the retirees covered by the California and Wisconsin plans enrolled in HMOs.

Employee-only coverage

Currently, approximately 62 percent of the states (31 of the 50) pay 100 percent of the cost for employee-only coverage under at least one basic plan. For the 12-month period ended January 1988, however, the number of states that pay less than 80 percent of the cost for single coverage increased from four to eight.

For the 12-month period, the to-

STATE EMPLOYEE HEALTH BENEFIT PLANS
Percentage Increase (Jan. to Jan.)

Year Ended January	CPI Medical Care Component	Average Total Cost-50 State Plans		
		Employee Only	Employee & Family	Retiree Over 65
1988	6.2%	14.1%	12.8%	11.3%
1987	7.5	5.3	4.8	4.6
1986	6.9	3.5	2.8	1.7

tal cost for employee-only coverage increased in 43 states and remained the same in seven states. This differs substantially from last year's findings, when the total cost increased in 23 states, remained the same in 21 states and decreased in six states.

The percentage increases in the total cost for single coverage ranged from less than 10 percent in 18 states to more than 25 percent in eight states. Two states, New York and North Carolina, experienced cost increases of more than 45 percent.

Additionally, the average total cost for employee-only coverage increased to $93.15 for January 1988 from $81.62 for January 1987, while the percentage changes in individual plan's costs varied substantially. The 14.1 percent increase in the average total cost for employee-only coverage was more than twice the 6.2 percent rise in national medical care costs as measured by the CPI.

Family coverage

Slightly less than one-fourth of the states (12 of the 50) pay for the full cost of health benefits for employees and their dependents. Between 1987 and 1988 the distribution of plans by the state's share of the total cost for employee and family coverage changed, with 28 states paying less than 80 percent of the total cost for employee and family coverage under the low basic plan. In 10 of the 28 states, the state's share was less than half the total cost for family coverage.

Among 38 state plans where employees contribute for employee and family coverage, the average employee cost was $74.02 for January 1988. In 12 of the 38 states, employees' out-of-pocket costs for family coverage exceeds $100 a month.

For the 50 state plans, the average total cost for family coverage increased 12.8 percent to $212.28 for January 1988, up from $188.15 for January 1987. The percentage increase in the average total cost for family coverage was slightly more than double the 6.2 percent rise in the medical component of the CPI.

Retiree-only coverage

Table 4 shows 1988 and 1987 contributions for a single retiree age 65 or over with Medicare. Contribution data are presented for only 48 states because Indiana and Nebraska do not allow retirees 65 and over to continue participating in the state health-benefits plan.

Currently, almost half the states make no contributions toward the cost of retiree health-care benefits. At the other end of the scale, 16 states pay for the full cost of coverage for some or all single retirees age 65 or over with Medicare.

Among the 48 state plans that make access to coverage available to retirees, the average cost of coverage for a single retiree 65 or over with Medicare was $61.97 for January 1988—or 11.3 percent higher than the $55.66 average for January 1987.

In many states, the growing number of politically effective, retired public employees will continue to lobby for legislation providing for payment by the state of a larger portion of the cost of their health-care coverage. It is expected that some states will increase their share of total costs for retirees, and that an increasing number of states

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will relate their share of total plan costs to the retiree's years of credited service.

State studies

In the next several years, it is anticipated that many states will authorize studies of the actuarial liabilities and funding costs for retiree health benefits. Also, some states may establish programs to start funding retiree health-care benefits on a level actuarial basis during employees' working years.

To a much greater extent in the future, retiree health-benefit plans will be designed to influence choices about care and providers. The enactment of catastrophic-coverage legislation this year may prompt states to re-evaluate the design and objectives of retiree health-benefit plans. In addition, there is likely to be a greater recognition of the importance of communications as a vehicle to encourage retirees to become more cost-conscious consumers of health care.

TABLE 1

Percentage of Covered Employees Enrolled in HMOs	Number of State Plans 1987	1988
70% and over	1	3
60% - 69%	2	3
50% - 59%	2	1
40% - 49%	6	6
30% - 39%	8	8
20% - 29%	10	9
10% - 19%	6	6
1% - 9%	7	8
0%	8	6

TABLE 2

State's Share of Total Cost for Employee Only Coverage	Number of State Plans 1987	1988
100%	32	31
90% - 99%	6	7
80% - 89%	8	4
70% - 79%	2	5
Less than 70%	2	3

TABLE 3

State's Share of Total Cost for Employee and Family Coverage	Number of State Plans 1987	1988
100%	12	12
90% - 99%	4	4
80% - 89%	7	6
70% - 79%	6	8
60% - 69%	6	3
50% - 59%	5	7
40% - 49%	6	6
Less than 40%	4	4

TABLE 4

State's Share of Total Cost for Single Retiree Age 65 or Over	Number of State Plans 1987	1988
100%	16*	16*
90% - 99%	3	3
80% - 89%	3	3
70% - 79%	—	1
60% - 69%	1	—
50% - 59%	1	1
10% - 49%	2	2
0%	24**	24**

* Includes three states (Colorado, Kentucky and New Jersey) that pay 100 percent only for single retirees with 20 or 25 years of service.

** Includes Indiana and Nebraska.

Cost management

State employee health-benefit plans utilize a wide variety of cost-management techniques, and these cost-management initiatives have played a major role in holding down increases in average plan costs. Although the average cost of state plans increased by more than twice the rise in the CPI medical-care component from January 1987 to January 1988, during the past three years the average cost of state plans has increased by approximately the same percentage as the medical component of the CPI.

Cost-management provisions introduced by state plans include: precertification- and preadmission-review programs; hospital length-of-stay assignments; concurrent-review and discharge planning; second-surgical-opinion programs; incentives for outpatient surgery and for diagnostic and preadmission tests performed on an outpatient basis; limitations on benefits for weekend admissions; audits of hospital and doctor bills; individual case management; home-health-care benefits; hospice benefits; wellness benefits and incentives for healthier lifestyles; and employee-assistance programs.

Also, in the past three years, states generally have been successful in holding down the costs of their employee health-benefit plans. These experiences indicate that cost-management initiatives can influence providers and make the health-care system more cost-effective. □

John Mackin is senior vice president and director of the governmental division of the Martin E. Segal Co., New York. He serves as a consultant to many large state and municipal benefits programs. Mr. Mackin received a BBA from the University of Miami, and a Master's and Ph.D. in economics from the University of Wisconsin.